APPENDIX C

DEVELOPMENT OF BACKGROUND THRESHOLD VALUES

In association and consultation with: Windward Environmental LLC

Appendix C: Development of Background Threshold Values

Final Aquatic Baseline Ecological Risk Assessment—Upper Columbia River

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ACRONYMS AND ABBREVIATIONS

95 UCL	95 percent upper confidence limit
AEMP	Aquatic Effects Monitoring Program
AREMP	Aquatic Receiving Environment Monitoring Program
BERA	baseline ecological risk assessment
BTV	background threshold value
CLR	centered-log-ratio
COPC	chemical of potential concern
CSM	conceptual site model
DMP	Data Management Plan
DUA	Data Usability Assessment
EPA	U.S. Environmental Protection Agency
HQ	hazard quotient
HUC	Hydrologic Unit Code
LOESS	locally weighted scatterplot smoothing
mg/kg	milligram(s) per kilogram
mm	millimeter(s)
OU	operable unit
PC	principal component
PCA	principal component analysis
RFDA	relict floodplain deposition area
RI/FS	remedial investigation and feasibility study
RM	river mile
Site	Upper Columbia River site
TAI	Teck American Incorporated
UCR	Upper Columbia River
UTL	upper tolerance limit
WSDA	windblown sediment deposition area

1. INTRODUCTION

This appendix presents the background analyses conducted by Teck American Incorporated (TAI) to support the baseline ecological risk assessment (BERA) for Operable Unit 1 (OU) 1 and OU 2 (the Aquatic BERA) of the Upper Columbia River (UCR) site (hereinafter, the Site[1]; see Map C-1). It includes background analyses for metals and metalloids in sediment and porewater. An assessment of background concentrations of metals and metalloids in upland soils for the Site have been previously developed as described in the technical memorandum that was approved by The U.S. Environmental Protection Agency (EPA) in 2020 and is used in the relict floodplain deposition area (RFDA) and windblown sediment deposition area (WSDA) BERA (Volume 4 of the main document). The soil background assessment technical memorandum is included as Attachment C1 to this appendix and briefly discussed in Section 3 of this appendix.

Background concentrations of substances in environmental media have been defined by USEPA (2002b) as the substance concentrations in constituents or locations that are not influenced by releases to the Site. This may include either naturally occurring or anthropogenic substances. Naturally occurring substances are present in the environment in forms that have not been influenced by human activity (e.g., metals naturally occur in the bedrock, sediments, and soils). Anthropogenic background (also known as "area background" [Washington Administrative Code 173-340-200]) includes substances that are present in the environment as a result of human activities but are not specifically related to the release in question. Thus, background can be considered a range of concentrations that includes both natural and area background.

Characterization of background concentrations in the environment is an important part of the remedial investigation and feasibility study (RI/FS) and risk assessment process (USEPA 2018) and is described in several federal and state guidance documents (U.S. Navy 2003; USEPA 1995; USEPA 2002b,c; Ecology 2019b). For the UCR Site, development of a background data set was first described in the Statement of Work for the 2006 UCR Site RI/FS Settlement Agreement (USEPA 2006a). The UCR Site RI/FS Work Plan (USEPA 2008) provided further detail on page 2-7, where the importance of characterizing background concentrations as part of the site characterization is described:

> The UCR RI/FS will include a series of field investigations to collect site characterization data (e.g., physical and ecological settings, sources of contamination, nature and extent of contamination, and background conditions) in order to make informed decisions about the level of risk presented by the site and the appropriate type(s) of remedial action that may be required.

[1] As per the June 2, 2006, Settlement Agreement for Implementation of Remedial Investigation and Feasibility Study at the Upper Columbia River Site (referred to herein as the UCR Site or Site), the Site consists of the areal extent of hazardous substances contamination within the United States in or adjacent to the Upper Columbia River, including the Franklin D. Roosevelt Lake, from the U.S.-Canada border to Grand Coulee Dam, and all suitable areas in proximity to such contamination necessary for implementation of the response actions (Remedial Investigation and Feasibility Study) described therein (USEPA 2006a).

The RI/FS Work Plan (USEPA 2008) also recognized that assessment of background conditions would be required to better understand the nature and extent of contamination, as will be evaluated in the Aquatic RI report.

This appendix presents the analyses conducted to establish background threshold values (BTVs[2]) and BTV hazard quotients (HQs) from the background data set for sediment (Section 2) and field-collected porewater (Section 4) to support the risk characterization in the Aquatic BERA. A refined analysis or discussion of background may be included in the Aquatic RI report.

[2] A background population parameter representing an upper threshold, in this case the 95 percent upper tolerance limit (UTL) with 95 percent coverage (95/95 UTL).

2. SEDIMENT BACKGROUND

Data visualization and multivariate statistical techniques were used to characterize sediment background. This section describes the approach and findings for the sediment BTVs, including the preparation of the data set, exploratory data analyses, multivariate analyses, and calculation of the BTVs.

Due to the large size of the UCR Site, there is significant variability in hydrological, geological, and biological conditions from north to south. While there are some regional background samples available from smaller tributaries in the watershed, as well as some samples from the Columbia River north of Trail, British Columbia, it is unclear whether these are sufficient to characterize the varied background conditions at the UCR Site. It is also likely that not all sediment samples in the UCR are impacted by smelter releases, and that there are locations where chemical concentrations in river sediments are reflective of background conditions. Therefore, a comprehensive sediment data set was compiled with the objective of using multivariate statistics to identify samples characteristic of background.

Multivariate statistical techniques consider suites of constituent concentrations concurrently and are often more powerful than univariate or bivariate techniques that look at data analyte by analyte. This study used a variety of visualization tools and multivariate statistical techniques (e.g., principal component analysis [PCA]) to identify unique chemical signatures associated with sediments and to identify a signature indicative of background. To objectively classify all the samples according to their unique signatures, a cluster analysis was done that partitioned the data into statistically defensible groups. The reliability and validity of these clusters were then assessed using multiple techniques. Those samples that were classified as the background cluster are used to develop BTVs.

2.1 SEDIMENT BACKGROUND ANALYSIS DATA SET

A comprehensive sediment data set was evaluated to identify sediment samples representative of background conditions, and included samples from: 1) the mainstem Columbia River between the Grand Coulee Dam and the U.S.-Canada border, 2) the mainstem Columbia River in Canada north and south of Trail, British Columbia, and 3) tributaries to the Columbia River. This evaluation began with a compilation of a comprehensive sediment data set from available data sources, including those contained in the UCR Site RI/FS project database (https://teck-ucr.equisonline.com/), as well as historical documents. The studies included in the comprehensive data set are listed in Table C-1.

2.1.1 DATA EXCLUSION/INCLUSION CRITERIA

Exclusion and inclusion criteria were applied to the comprehensive data set to produce the data set used for analysis. There were three steps in the process for developing and applying these criteria:

1. **Apply general exclusion criteria relating to sample matrices, locations, and collection/analytical methods.**

In the first step, a set of general data exclusion criteria were applied to all studies to facilitate comparability across data sets:

- Soil data were excluded; only samples labeled as sediment from the Columbia River and its tributaries were retained.
- Results for samples prepared using total digestion[3] methods were excluded; this represents a negligible reduction in sample size.
- Results from acid-volatile sulfide/simultaneously extracted metals analysis methods were excluded to facilitate comparability across analytical results.
- Results from studies or sample analyses performed using only the very fine fraction of the sediment matrix were excluded. These include bulk sediment chemistry performed on beach sediment samples specifically collected for human health risk assessments, which were performed on the less than 250 micrometer sieve fraction, and other sediment samples sieved to 150 micrometers.

2. **Identify the list of metals to include in the multivariate analysis by considering the frequency of analysis and frequency of detection for individual metals across all studies and applying a cutoff for detection frequency.**

   For the second step, the samples remaining after the general exclusion criteria (from the first step) were reviewed for the number of metal analytes reported and detected for sediment samples. The list of metals evaluated included the Target Analyte List[4] plus molybdenum. The percent coverage (the frequency that a metal was analyzed) and detection frequency were calculated for each analyte. These statistics were reviewed to identify which metals to exclude from the multivariate analysis due to either infrequent analysis (low percent coverage) or high proportion of nondetected results (low detection frequency). A cutoff criterion for detection frequency was selected by plotting the numbers of samples included and excluded as a function of detection frequency, and visually assessing what criterion allowed for the inclusion of as many samples as possible while, at the same time, achieving a close-to-complete data set consisting of detected results. A cutoff criterion of 75 percent analyte detection frequency was identified and used to exclude metals exhibiting a high proportion of nondetected results across samples. Antimony, selenium, silver, and thallium were excluded because they were either infrequently analyzed across the data sets or had low detection frequencies. Molybdenum was also excluded from the multivariate analyses as it was analyzed in only a very small subset of sediment samples in the data set (less than 1 percent of samples).

   Based on the screening completed in the second step, the following 19 metals met the inclusion criteria and were retained for the multivariate analysis:

[3] Total digestion methods (e.g., a four-acid procedure including hydrofluoric acid) are capable of dissolving mineral grains and mobilizing relatively high concentrations of certain metals (e.g., aluminum and potassium).

[4] Target Analyte List metals include aluminum (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), cadmium (Cd), calcium (Ca), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), magnesium (Mg), manganese (Mn), mercury (Hg), nickel (Ni), potassium (K), selenium (Se), silver (Ag), sodium (Na), thallium (Tl), vanadium (V), and zinc (Zn).

Aluminum	Cobalt	Nickel
Arsenic	Copper	Potassium
Barium	Iron	Sodium
Beryllium	Lead	Vanadium
Cadmium	Magnesium	Zinc
Calcium	Manganese	
Chromium	Mercury	

3. **Exclude samples that did not include all metals identified in step 2.**

   For the third step, studies or samples where the full list of 19 metals was not analyzed were removed from the data set.

Table C-1 presents the number of samples from each study that met inclusion criteria and that were included in the sediment background analysis data set (n = 1,641 samples). All the samples included in the sediment background analysis data set are provided in Attachment C2 and shown spatially in Map C-2a through Map C-2l.

2.1.2 DATA HANDLING

Data management was performed in accordance with the UCR Final Data Management Plan (DMP) Amendment No. 1, 2019 (TAI 2019). The following sections outline data handling specific to this analysis, including nondetected values, field duplicates, and grain size.

Nondetected results are statistically known as "left censored" measurements because the concentration of a nondetected result falls somewhere between zero and the reporting limit. USEPA (2015) offers a number of options for handling nondetected results, including Kaplan-Meier estimators, Regression on Order Statistics, and replacement with surrogate values. In the PCA analysis, nondetected values were substituted with the reporting limit, as recommended in the DMP (TAI 2019). Handling of nondetected values for BTV calculations was performed by ProUCL.

Field duplicates and replicates were treated following the procedure outlined in the DMP, as described in Section 3.3 of Volume 1 of the Aquatic BERA.

2.2 ANALYSIS APPROACH

This section describes the approach to the sediment background analysis, including multivariate analyses such as PCA, cluster analysis, and the statistical methods for calculating BTVs.

2.2.1 PRINCIPAL COMPONENT ANALYSIS AND CLUSTER ANALYSIS

This section describes the methods and uncertainties for the PCA and cluster analysis.

PCA aids understanding of complex patterns in multivariate data that are often difficult to detect with univariate techniques by reducing the multivariate data into their dominant patterns (Jolliffe and Cadima 2016). PCA results can be visually segregated to group individual samples based on the relative similarity or dissimilarity of their underlying data. In the sediment background analyses, samples that plot close to each other in multivariate space have relatively similar metals "fingerprints" compared to samples that plot farther away from each other. From a technical

perspective, PCA is a data reduction technique that projects multivariate data onto a smaller dimensional space. Much like the shadow of a tree, the two-dimensional image projected on the ground is a simplification of the three-dimensional form but provides key information, such as the overall shape, that can be used to identify the type of tree (e.g., palm tree or conifer). Similarly, PCA allows data containing a large number of correlated variables (e.g., multiple metal concentrations) to be summarized by a smaller number of uncorrelated variables, called principal components (PCs) that capture key information in the data and can be used to distinguish unique fingerprints. The PC loadings reflect the relative contribution or importance of each variable on each PC. PC loadings are the correlation coefficients for the relationship of individual variables with the PCs and provide the basis for interpreting the underlying construct measured by each PC. Using the tree example again, the loadings would indicate how important the tree biomass, diameter, and height are for defining each PC. The objective of the PCA was to identify multivariate signatures of different sources (e.g., smelter, other sources, geogenic).

Clustering is a technique used to group data points into distinct categories. Hierarchical clustering is among the most common machine learning methods for clustering. In a hierarchical cluster analysis, the distance between samples—in multivariate space—is calculated, and samples are grouped with the nearest or "most similar" samples. This process of grouping samples and re-calculating the distance between remaining samples is repeated until all data points have been combined into a single cluster. This clustering process is commonly visualized in a tree-like graph structure, called a dendrogram, which displays the distance between each sample pair and the resulting clusters. Quantitative or semi-quantitative methods can then be used to determine the optimal number of clusters. A hierarchical cluster analysis was performed on the PCA outputs to identify samples with similar multivariate chemical fingerprints.

2.2.1.1 METHODS FOR PRINCIPAL COMPONENT ANALYSIS

The essential first step in PCA is a thorough exploratory data analysis. PCA is based on an eigenvalue decomposition of the correlation matrix that enables the "projection" of the data as with the tree shadow example above. Standard analyses use the Pearson correlation coefficient and are therefore appropriate for summarizing variables with strong linear relationships; however, the Pearson correlation coefficient does not capture curvilinear relationships. Correlation coefficients are sensitive to outliers, so transformations of the data are often required to achieve linear relationships among variables. A good graphical analysis can guide transformations that are useful for linearizing curvilinear relationships and normalizing skewed data. Graphical techniques also provide a means for assessing the impact of missing data, imputations, and detection limit substitutions.

Incomplete data can have a large impact on PCA results, so thorough investigation of the spatial or temporal patterns in the missing data is critical. Missing data can drive the PCA results, mask the underlying patterns, and lead to confusing results if persistent data gaps are not identified. In this analysis, each study that contributed a data set was evaluated for data completeness, both for metals and individual sample results (as described in Section 2.1).

All metals concentrations were centered-log-ratio (CLR) transformed prior to running the PCA:

For each sample, $CLR_j = \log\left(\frac{X_j}{g(X)}\right),\ j = 1, \ldots, J$

Where:

- J is the number of components (metals)
- g(X) is the weighted geometric mean of all the components within that sample
- X_j is the untransformed concentration for metal J.

The CLR transformation has a long history of use in compositional data analysis (Atchison 1982, 1994; Reimann et al. 2012). As with a proportional transformation, it removes variance due solely to differences in magnitude of concentration and focuses on differences in the relative concentrations. Unlike a proportional transformation the CLR prevents the development of spurious correlations due to constant summation (all proportions in a sample must sum to 1) and meets the criteria for calculations in Euclidean space (Gloor et al. 2017).

The "compositions" package in R was used to transform all samples into a set of CLR values for each metal. Afterward, each of the metals were scaled to unit variance and centered to a mean of zero to minimize the effects of differences in variance among metals and samples. These standardized values then have their correlation matrix and eigenvalues computed, before finally imputing missing values with zero. By computing the correlation matrix and eigenvalues prior to filling in missing values, it retains the underlying relationships in the data. The variance is also maintained, without being influenced by the imputed values.

In the final step, the metal's means, variances, and loadings that are estimated in the PCA can be saved and used to calculate PC scores for new data. These PC scores may be used in subsequent analyses.

2.2.1.2 VISUALIZATION AND INTERPRETATION OF A PRINCIPAL COMPONENT ANALYSIS

A number of data visualization tools are used to aid the interpretation of the PCA. These include scree plots, PC loading plots, and PC biplots. Loadings of the metals on each PC can be viewed separately to understand the metals composition of samples with relatively high or low scores on a particular PC. For example, a sample with a high PC score is concurrently high in analytes that load positively onto that PC and low in the analytes that load negatively on that PC. This information can be used to interpret the chemical composition of sample scores and is useful when describing the predominant patterns captured in the PCA. In general, metals that have loadings above 0.4 on a PC are considered important enough to be used as part of the interpretation of that PC as they have at least a moderately strong correlation with the component[5] (Guilford 1956).

Each PC captures successively smaller portions of the overall variance of the data so that if all PCs are included in the final solution, 100 percent of the overall variance is captured. A meaningful interpretation of the data can often be captured by including only the first few PCs. Scree plots are

[5] Guilford's rule of thumb uses the following benchmarks to guide interpretation of correlation coefficients (r): < 0.2 is a negligible relationship, 0.2 to 0.4 is a low relationship, 0.4 to 0.7 is a moderate relationship, 0.7 to 0.9 is a high relationship and > 0.9 is a very high relationship.

helpful to visualize the proportion of variance explained, with the bend (often referred to as the elbow) in the scree typically indicating the number of PCs to retain for further analysis.

PCA results are traditionally viewed as biplots where different combinations of the PCs are plotted against each other on x-y plots to give views of different rotations of the data in the multidimensional space. In this sediment background evaluation, samples that plot close to each other in a biplot have relatively similar chemical fingerprints, whereas samples that plot far from each other tend to have relatively dissimilar fingerprints. Vectors are overlaid on these plots to represent the loadings of each analyte on each PC. Longer vectors represent a relatively higher loading on a PC. Finally, points on these biplots can be color-coded according to other important Site information and facilitate further interpretation.

2.2.1.3 METHODS FOR CLUSTER ANALYSIS

Hierarchical clustering on the Euclidean distance matrix of scaled PC1, PC2, and PC3 scores was conducted by means of Ward linkage, using the "vegan"[6] and "stats"[7] packages in R (Oksanen et al. 2022). The optimal number of clusters in a given clustering analysis can be difficult to choose, as there is no agreement on the best method to use. Many methods exist to identify an optimal number of clusters. These methods combine information about intracluster compactness (homogeneity within the cluster) and intercluster isolation (between cluster distance), as well as other factors, such as connectedness, and stability (Gao et al. 2023). Given the lack of agreement on best methodology, the optimal number of clusters was chosen using the consensus of 22 cluster fit metrics as implemented in the "NbClust"[8] package (Charrad et al. 2014). Clusters were examined with PCA biplots and mapped to determine their relative distributions across the Site.

2.2.1.4 VALIDATION AND RELIABILITY OF CLUSTERING RESULTS

Statistical validity generally refers to the extent to which a statistical conclusion is well founded and corresponds accurately in the real world. There are many types of statistical validity that have been applied across disciplines and are well documented in the literature (for examples in the medical and psychology fields, see Kaplan and Saccuzzo 1982). In the context of cluster analysis, it can be thought of as the extent to which samples are accurately classified into relevant groups. Some specific types of validity applicable to this analysis are internal validity, face validity, and external validity.

Various data visualizations and summaries were used to assess the internal and face validity of the cluster classifications. In particular, boxplots and spatial groupings were used to illustrate characteristics of the cluster groupings and to help confirm which cluster represents the background data set. Boxplots of metals concentrations for each cluster were created to compare the distribution of each metal across the clusters. The spatial distribution and aggregation of clusters was illustrated by computing the proportion of each cluster identified for samples in

[6] Vegan v2.6-10 package version with function vegdist(df, method="euclidean")
[7] Stats v4.4.0 package version with function hclust(distance, method="ward.D2")
[8] NbClust v3.0.1 package version, with function NbClust(df, min.nc=2, max.nc=6, distance="euclidean", method="ward.D2", index="all")

different conceptual site model (CSM) units of the UCR Site (shown in Map C-1), the Columbia River north of Trail, British Columbia, and tributaries to the Columbia River.

In addition to validating the statistical results, cluster reliability and sample fidelity was also assessed. A bootstrapping procedure was used for this assessment as follows:

1. For each bootstrap replicate, PC scores were randomly sampled with replacement to obtain a sample size equivalent to the sample size of the original data set (1,641 samples).
2. The hierarchical cluster analysis, with three clusters, was run on the randomly sampled PC scores following the procedure outlined in Section 2.2.1.3.
3. New cluster assignments were mapped to the original assignments using a frequentist approach (e.g., if the majority of newly assigned Cluster 1 belonged to the originally assigned Cluster 3, then the new Cluster 1 was mapped to Cluster 3). This ensured that cluster assignments remained consistent throughout the bootstrapped iterations.
4. The random selected samples and their cluster assignments are saved, and the process was repeated for the next bootstrap replicate. This procedure was repeated a total of 1,000 times.

Cluster reliability is reported as the percentage of samples that change cluster assignments between the original clustering and the bootstrapped cluster group. Additionally, the fidelity of individual background cluster samples is assessed by evaluating how consistently each sample remains within the background cluster across all bootstrapped iterations. Any background cluster samples that have less than 95 percent fidelity were excluded from BTV calculations.

2.2.2 CALCULATION OF BACKGROUND THRESHOLD VALUES

BTVs were calculated as 95/95 UTLs, using ProUCL 5.2 (USEPA 2022). BTVs were calculated using metal concentrations for the samples in the background cluster identified using the PCA and clustering as described above. The input and output files for the statistical calculations in ProUCL are provided in Attachment C2 for the sediment BTVs.

Antimony, selenium, silver, and thallium had BTVs calculated, even though they were excluded from the PCA due to low sampling and detection frequencies. For each of these four analytes, no imputed values were used in the BTV calculations, and all nondetected samples that exceeded the maximum detected value for the respective analyte were removed before the 95/95 UTLs were calculated.

2.3 FINDINGS

This section presents the findings of the sediment background analysis. This includes exploratory analyses, PCA, cluster analyses, and the calculation of BTVs.

2.3.1 PCA RESULTS

The first three PCs captured 75 percent of the variability in the multivariate data. The scree plot (Figure C-1) suggested inclusion of additional PCs would not add substantially more information. The following sections describe the PCA results and place them into context with the CSM.

2.3.1.1 LOADINGS

The loadings of each metal were plotted from low to high for each of the first three PCs to identify which metals create the greatest separation of the chemical fingerprints in each dimension (Figure C-2). Loadings are purple and yellow for values below -0.5 and above 0.5, respectively. These visual cues indicate which metals are the most important for characterizing each PC.

PC1 has lead, zinc, copper, and cadmium loading negatively, and beryllium, magnesium, chromium, cobalt, nickel, vanadium, potassium, and aluminum loading positively. This suggests that samples that have negative scores on PC1 have proportionally higher concentrations of lead, zinc, copper, and cadmium compared to the other metals. This does not necessarily imply that samples with more negative PC1 scores have higher absolute concentrations of these metals, but that they had higher relative concentrations (relative to other metals in the sample).

PC2 has negative loadings of mercury and cadmium, and positive loadings of cobalt, sodium, copper, manganese, and iron. PC3 has negative loadings of calcium, and no positively loading metals above 0.5.

2.3.1.2 BIPLOTS

Plotting PC1 versus PC2 shows a distinctive horseshoe shape (Figure C-3). This is a well-known phenomenon in ecological studies (e.g., Goodall 1954; Podani and Miklós 2002), and suggests that there is a confounding variable with a strong gradient relative to the covariance in the metals data. Gradients can be in time, space, soil composition, sediment grain size, or could be a linear combination of any of the former variables, or other unmeasured variables. Practically, this means that the first PC axis (PC1) cannot be used by itself to separate samples, but that at least the first two dimensions need to be considered together.

The biplot for PC1 versus PC2 (Figure C-3) shows samples plotting in the upper left that have relatively higher proportions of zinc, copper, and barium compared to other samples. Those samples in the lower left quadrant also have higher relative proportions of mercury and cadmium.

2.3.2 CLUSTER RESULTS

Results for the cluster analysis are described below.

2.3.2.1 SELECTION OF CLUSTER NUMBER

Hierarchical cluster analysis with Euclidean distance and Ward linkage was applied to the first three PCs (scaled to mean of zero and unit variance). The top three proposed number of clusters were three clusters with 14 out of 22 cluster fit metrics, six proposed clusters with three metrics, and two proposed clusters with two metrics. Therefore, the three cluster solution was carried forward as the optimal solution (Table C-2).

2.3.2.2 DESCRIPTION OF THE CLUSTER RESULTS

The three clusters were numbered based on their position in the PC1 versus PC2 biplot, beginning with Cluster 1 in the upper left quadrant and ending with Cluster 3 on the far right (Figure C-4). The following describes cluster characteristics based on their positions in the biplots:

- **Cluster 1** (green; n = 345) has higher relative proportions of zinc, lead, copper, and cadmium (negative PC1) and higher relative proportions of iron, manganese, and copper (positive PC2) with lower relative proportions of mercury and cadmium compared to other samples.
- **Cluster 2** (orange; n = 559) has higher relative proportions of zinc, lead, copper, and cadmium (negative PC1) and higher relative proportions of cadmium and mercury (negative PC2) compared to other samples.
- **Cluster 3** (purple; n = 737) has relatively higher proportions of beryllium, magnesium, chromium, cobalt, nickel, vanadium, potassium, and aluminum (positive PC1), while not having any particularly higher or lower relative concentrations of zinc and copper versus cadmium and mercury (0 centered PC2). The samples in this cluster were selected to represent background metal conditions in OUs 1 and 2, and these samples were used to calculate BTVs.

Additional characteristics of each cluster are presented in Figures C-5 through C-8. Figure C-5 presents boxplots of metal concentrations by cluster. As can be seen in the boxplots, most metals have higher concentrations in Cluster 1 (only exceptions are cadmium, magnesium, mercury, and nickel), and the remaining metals have higher concentrations in Cluster 2 (e.g., cadmium and mercury). For all metals, Cluster 3 has the lowest concentrations.

The spatial distribution of cluster results was evaluated using area categories. Samples were categorized by area as follows and shown in Map C-3a through Map C-3l:

- OU 1 North CSM Unit
- OU 1 South CSM Unit
- Transitional CSM Unit (OU 2)
- Upper Lacustrine CSM Unit (OU 2)
- Middle Lacustrine CSM Unit (OU 2)
- Lower Lacustrine CSM Unit (OU 2)
- Mainstem Columbia River in British Columbia below Trail
- Mainstem Columbia River in British Columbia above Trail, including Lower Arrow Lake
- Tributaries of the UCR in the U.S.
- Tributaries of the Columbia River in British Columbia, Canada

Figure C-6 and Table C-3 show the cluster composition for each of the spatial areas evaluated, while Table C-4 presents the assigned cluster for all individual samples. Samples from Cluster 1 are primarily located in OU 1 North, with some also found in OU 1 South, the Transitional CSM Unit (OU 2), and the Lower Columbia River in British Columbia below Trail. Aside from one sample assigned to Cluster 1 in the Upper Lacustrine CSM Unit[9], no other Cluster 1 samples are found farther downstream of this unit. Cluster 2 samples are distributed across all areas except for the mainstem Columbia River in British Columbia above Trail. The highest percentages of Cluster 2

[9] The only sediment sample in OU 2 downriver of the Transitional CSM Unit assigned to Cluster 1 was from a subsurface sediment core collected during the 2005 Phase 1 Sediment Sampling at River Mile 692 (Location ID RM692C1). This sediment sample was collected from a depth of 36 to 60 inches below the sediment bed surface.

samples are found in OU 1 South and the Lower Columbia River in British Columbia below Trail. Cluster 3 samples are present in all areas except the Lower Columbia River in British Columbia below Trail, with the highest percentages found in U.S. and Canada tributaries, the mainstem Columbia River in British Columbia above Trail, and CSM units in OU 2. Notably, Cluster 3 has the lowest percentage of samples in OU 1 North and OU 1 South.

Clusters were also evaluated with respect to the grain size composition of the associated samples, when available. Sediment grain size analytical results for samples were summed across size fractions to create three standardized grain size categories: fines, sand, and gravel. This standardization of grain size can, in some cases, result in grain size sums in excess of 100 percent. In general, this is the result of laboratory methods and/or rounding. Thus, as an additional step, grain size was normalized to 100 percent prior to its use. Fine sediments (or fines) were defined as grain sizes less than or equal to 0.074 millimeters (mm) (for 2005 Phase 1 Sediment Sampling [USEPA 2006b], 2013 Phase 2 Sediment Study [TAI 2017], and 2019 Phase 3 Sediment Study samples [TAI 2022]) or less than or equal to 0.0625 mm (for 2009–2011 Beach Sediment Study [TAI 2014] and 2015 Bossburg Flat Sediment and Soil Study [TAI 2016] samples), and they include size fractions representing silts, clays, and colloids. For this background analysis, sand was defined as grain sizes between 0.074 mm or 0.0625 mm and 2 mm, and gravel was defined as grain sizes between 2 mm and 64 mm.

Figure C-7 presents boxplots of percent sand, fines, and gravel by cluster designation. Samples in Clusters 1 and 3 are generally sandy, with 50 percent of samples in each cluster having greater than 70 percent sand. Samples in Cluster 2 generally contain higher percent fines. Samples in Cluster 3—the cluster selected for developing BTVs—are representative of sandy sediment and do not capture the full range of finer-grained sediments (fines) present at the Site, particularly within OU 2. Figure C-8 illustrates the percent fines for all samples used in this analysis, with Cluster 3 samples highlighted. As shown in the figure, the majority of Cluster 3 samples contain less than 50 percent fines.

2.3.2.3 VALIDATION AND RELIABILITY OF CLUSTER GROUPINGS

Multiple lines of evidence were used to validate the findings of the cluster analysis and assess validity. The spatial distribution of clusters (Figure C-6) showed that Cluster 3 (the background cluster) is the only cluster identified for samples from the Columbia River north of Trail, and was also prevalent for tributary samples. Boxplots showing the distribution of metals concentrations in each cluster provided important internal validity for the statistical results (Figure C-5), with the clusters separating based on different concentrations of key metals. The background cluster (Cluster 3) was the lowest in metals concentrations, consistent with sediment that has been unimpacted by specific point sources.

In addition to validating the statistical results, cluster reliability and sample fidelity was also assessed. As described previously, a bootstrapping procedure was used to assess the likelihood of samples changing cluster membership. The cluster reliability assessment was reported as the percentage of samples that change cluster assignments between the original cluster group and the bootstrapped cluster groups. For example, a cluster that has 95 percent cluster reliability has 5 percent of its samples assigned to different clusters across the 1,000 bootstrap replicates.

The cluster reliability assessment showed high reliability for two of the three clusters (Table C-5). Cluster 3 showed the highest reliability with 97.9 percent of samples in the original Cluster 3 being assigned to the same cluster across the bootstrap sampled replicates; most importantly, no samples from Cluster 3 were ever found to be assigned to Cluster 1. Cluster 1 showed 86.0 percent reliability, with 13.8 percent of samples ending in Cluster 2. Reinforcing the Cluster 3 findings indicated previously, an extremely small percentage (0.3 percent) of Cluster 1 samples ended in Cluster 3. Cluster 2 had the lowest reliability at 78.4 percent. For Cluster 2, 20.2 percent of the misclassified samples ended up in Cluster 3, with 1.5 percent of samples ending in Cluster 1.

Individual sample fidelity results for Cluster 3 are presented in Table C-6. Of the 737 total samples in this cluster, 68 samples exhibited fidelity below 95 percent, meaning they had less than a 95 percent probability of being reassigned to Cluster 3 during bootstrapping. The remaining 669 samples demonstrated fidelity greater than 95 percent and are therefore considered stable. Based on this analysis, to calculate the BTV, those Cluster 3 samples with less than 95 percent fidelity were removed, and only those samples that had greater than 95 percent fidelity (n=669) were used in the calculation.

2.4 SEDIMENT BACKGROUND THRESHOLD VALUES AND BACKGROUND THRESHOLD VALUES HAZARD QUOTIENTS

Sediment BTVs, calculated as described in Section 2.2.2 of this appendix using samples classified as Cluster 3 with high-fidelity, are presented in Table C-7. BTVs were calculated for antimony, selenium, silver, and thallium from samples containing these metals in Cluster 3, although they were not used in the PCA and cluster analyses (Attachment C2). There were fewer than 10 samples from Cluster 3 that included results for molybdenum; therefore, no BTV was calculated for molybdenum.

To assess the impact of including samples from OU 1 in the BTV calculations, BTVs calculated from the full background cluster compared to BTVs where samples from OU 1 are excluded are presented in Table C-8. As can be seen, the inclusion of the 58 samples from OU 1 that fall within the background cluster have a minimal impact on the calculated BTVs. For most metals, there was a less than 1 percent difference, and all metals show less than a 7 percent change in BTVs, with the exception of mercury (which changes 0.01 mg/kg). Therefore, it was concluded that inclusion of the Cluster 3 samples from OU 1 in the BTV calculations has a minimal impact on the BTVs.

For the Aquatic BERA, BTV HQs are calculated to provide context for the UCR Site HQs calculated in the BERA. BTV HQs are calculated using the same approach as the Site HQs (see Section 4 of Volume 1), but using the sediment BTVs presented in Table C-7 as the exposure point concentration. BTV HQs using the sediment BTV are calculated for the following exposure pathways and receptor groups: direct contact to sediment for aquatic plants and benthic invertebrates, and dietary dose for fish, birds, and mammals. For dietary dose, BTV HQs are calculated only for receptors for which all components of their diet are modeled from sediment concentrations. Bioaccumulation of chemicals of potential concern (COPCs) from sediment is modeled for aquatic plants, small aquatic invertebrates, and adult flying aquatic emergent insects, whereas COPC concentrations for fish, crayfish, and mussels are estimated from sampled biota

tissue concentrations (see Section 4.1.2.3 of Volume 1). Therefore, dietary dose BTV HQs are calculated for all receptors that eat only aquatic plants, small aquatic invertebrates, and/or adult flying aquatic emergent insects; this includes largescale sucker, longnose dace, tundra swan, spotted sandpiper, mallard, tree swallow, muskrat, water shrew, and little brown bat (see Section 4.1.2.1 and Table 4-3 of Volume 1).

The BTV HQs using the sediment BTV are presented in Aquatic BERA Appendix M alongside the calculation of Site HQs.

2.5 COMPARISON OF SEDIMENT BACKGROUND THRESHOLD VALUES TO OTHER REGIONAL BACKGROUND DATA SETS AND FOR THE COLUMBIA RIVER NORTH OF TRAIL

Previous studies have included assessments of regional background (or reference) sediment metals concentrations that were either used or intended to be used for comparing to sediment metals concentrations at the UCR Site. This section provides a summary of other regional background data sets and a comparison of the sediment BTVs to background concentrations developed from these other available regional background data sets. This section also provides alternative BTVs developed from only Cluster 3 samples that are in the mainstem Columbia River in British Columbia north of Trail. The comparisons serve to contextualize the sediment BTVs and assess their representativeness to regional background sediment concentrations and illustrate the variability in estimates of background concentrations.

Studies with applicable regional background or reference sediment metals concentrations include the following:

- 2010 Vlassopoulos Expert Report (Vlassopoulos 2010)
- Regional Background Concentration Technical Memorandum (MacDonald 2014)
- 2004 USGS Toxicity Evaluation (Besser et. al 2007)
- 2002–2003 USGS Sediment Core Sampling (USGS 2005)
- 2001 USGS Beach and Bed Sediments of Lake Roosevelt (USGS 2003)
- 2001 Reassessment of Toxicity of Lake Roosevelt Sediments (Ecology 2001)
- Assessment of Columbia River Receiving Waters (Teck Cominco Ltd. 2001)
- 1992 USGS Sediment Quality Assessment (USGS 2001)
- 1986 Ecology Assessment of Metals (Ecology 1989)

Regional background data sets were compiled from each study and are presented in Table C-9. Most of the studies summarized in Table C-9 relied on samples collected from the mainstem Columbia River in British Columbia above Trail to describe background or reference metals concentrations. These include USGS (2003), Teck Cominco Ltd. (2001), Ecology (2001), USGS (2001), and Ecology (1989). Studies by USGS (2007) and MacDonald (2014) relied on sediment samples collected in tributaries to the UCR to develop background or reference concentrations, and USGS (2003) collected samples of glacial sediments collected above the current Lake Roosevelt water level. Vlassopoulos (2010) presented concentrations of "pre-smelter" sediment obtained from a series of cores collected in OU 1 North. Other investigations that included

collection of sediment cores at the Site in 2002 to 2003 (USGS 2005) and 2005 (USEPA 2006b) did not identify specific samples intervals as representing background or reference sediment conditions; therefore, results from core samples from the Phase 1 Sediment Sampling (USEPA 2006b) and the 2002–2003 USGS Sediment Core Sampling (USGS 2005) are not included in Table C-9.

As noted above, these studies encompass a broad geographic and temporal range for estimating regional background sediment conditions. Many of these studies employ different sampling strategies, sample sizes, locations, analytical methodologies, and statistical approaches to develop background values which make it inappropriate to directly compare concentrations among these studies.

3. SOIL BACKGROUND

Soil BTVs were used in the evaluation of the RFDAs and the WSDAs in Volume 4 of the Aquatic BERA. The final soil BTVs were approved by EPA in 2020 (Attachment C1). The soil BTVs used in Volume 4 are presented in Table C-10 as well as in Aquatic BERA Volume 4. The final technical memorandum presenting the approach and soil BTVs are presented as Attachment C1 of this appendix.

For calculating BTV HQs using the soil BTV, the same approach as the sediment BTV HQs (see Section 2.4 above) is used. Dietary dose BTV HQs can be calculated for all evaluated terrestrial receptors, as COPC concentrations in terrestrial food items are modeled from soil concentrations (see Section 4.1 of Volume 4). The BTV HQs using the soil BTV are presented in Aquatic BERA Appendix M.

4. POREWATER BACKGROUND

This section describes the development of the BTVs for porewater, including the data set preparation and the calculation of the BTVs.

4.1 POREWATER BACKGROUND DATA SET

As described in the Data Usability Assessment (DUA) for the Aquatic BERA (Appendix A), the Aquatic BERA data set includes field-collected porewater data from three studies in the UCR: the 2013 Phase 2 Sediment Study (TAI 2017), the 2015 USGS Porewater Study (USGS 2016), and the 2019 Phase 3 Sediment Study (TAI 2022). The Phase 2 field porewater data were collected from locations in OU 1 and OU 2 while field porewater samples from the 2015 USGS and 2019 Phase 3 studies were collected solely from OU 1. The Phase 2 and Phase 3 studies also included collection of field porewater samples from locations in the Columbia River, upstream of Trail, British Columbia. No upstream reference locations were sampled in the 2015 USGS Porewater Study.

In the 2013 Phase 2 Sediment Study, upstream reference samples were collected from two locations in the riverine reach near Genelle and from two locations in Lower Arrow Lake (TAI 2017) (Map C-4). Samples were collected by extracting water out of the sediment grab sampler at the time of collection. In cases where water could not be removed from the grab sampler, the sediment sample was transferred to a mixing container and the porewater sample was collected by siphoning out the water from the mixing container with the assumption that it represented porewater when it was in situ (see Appendix A for more detail regarding the collection of porewater during Phase 2).

In the 2019 Phase 3 Sediment Study, upstream reference samples were collected from 12 locations in the riverine reach upstream of Trail and from 6 locations from Lower Arrow Lake (Map C-4). Four riverine reference samples were collected from the Birchbank area and eight were collected from the reach near Genelle (TAI 2022). The porewater samples from the Phase 3 sediment study were collected in situ using a Trident probe prior to the collection of sediment samples.

4.2 APPROACH TO CALCULATING POREWATER BACKGROUND THRESHOLD VALUES AND BACKGROUND THRESHOLD VALUES HAZARD QUOTIENTS

BTVs are calculated on the concentrations of dissolved metals in porewater from the background data set to help understand the nature and extent of COPC concentrations in OUs 1 and 2 relative to upstream reference conditions. Additionally, porewater BTV HQs are calculated to provide a basis for comparison of risks from the Site to background risks under upstream reference conditions.

Due to uncertainties associated with the porewater data, the porewater concentration BTVs and the porewater BTV HQs are calculated for multiple data handling scenarios as described in detail below. ProUCL input and output files associated with each of the below scenarios for the porewater BTVs are presented in Attachment C3.

4.2.1 UNCERTAINTIES ASSOCIATED WITH U* QUALIFIED POREWATER DATA

As noted in the Phase 2 Data Summary Report (TAI 2017) and the Phase 3 Data Summary Report (TAI 2022), some of the porewater results from the upstream reference areas were assigned U* qualifiers and are thus considered nondetected results for use in this BERA. The results were reported as detected by the analytical laboratory but were subsequently qualified as nondetected by the data validator based on the detected concentrations of metals in the associated equipment blank(s). The U* flag was applied to indicate uncertainty in the reported result due to the detection of the analyte within a factor of 5 in an associated blank quality control sample, including equipment rinsate, laboratory, or filtration blank samples. Most U* qualifiers were assigned based on detections in the associated equipment rinsate blank collected in the field at the time of porewater sampling. The reported results for those samples are used to represent the concentrations for the U* qualified results consistent with the handling of nondetected values in the Aquatic BERA. However, because there is uncertainty as to whether equipment contamination caused reference sample concentrations to be inflated and, by extension, any BTVs calculated based on those results, additional analyses were conducted to attempt to bound the potential uncertainty of the BTVs calculated from the upstream porewater data.

The analyses to address uncertainties from blank contamination included a series of scenarios where equipment rinsate blank concentrations were subtracted from the reported analytical results for U* samples. The blank-subtraction approach was only applied to the Phase 3 porewater data because none of the toxicity modifying factors that are input parameters into the biotic ligand model (e.g., dissolved organic carbon, alkalinity) were U* qualified (TAI 2022). In the Phase 2 study, several of the toxicity modifying factors required for calculation of benchmark values were detected in the porewater equipment blank sample which resulted in U* flags on many of the results for toxicity modifying factors in the Phase 2 data set. Applying the blank-subtraction approach to those parameters resulted in unrealistic porewater chemistry values leading to significant uncertainty in estimates of bioavailability. Therefore, the Phase 2 data were not included in the blank-subtraction analyses.

The blank-subtraction approach for adjusting reported results and subsequent calculation of BTVs and BTV HQs involved the steps listed below. Blank subtractions were only evaluated for the porewater COPCs aluminum, antimony, cadmium, copper, iron, lead, manganese, and zinc.[10] The stepwise procedure is as follows:

1. For analytes with U* flagged results, the reported concentration in the associated equipment blank sample is subtracted from the reported concentration in the field-collected sample. In samples where the reported concentration was less than the reported concentration in the corresponding equipment blank sample, sample results were set to the detection limit. For the Phase 3 data set, one equipment rinsate blank was collected that corresponded to all reference area samples (TAI 2022). The reported results from the relevant equipment blank are provided in Table C-11.

[10] The blank subtraction evaluation was not performed for molybdenum, a porewater COPC, because porewater samples were not analyzed for molybdenum in the 2019 Phase 3 Sediment Study (TAI 2022).

2. The blank-subtracted metals concentrations are used to calculate blank-adjusted BTVs of dissolved metals concentrations.
3. For analytes with sample-specific benchmarks (cadmium, copper, lead, and zinc), the blank-subtracted metals concentration from each sample is used to calculate a blank-subtracted HQ.
4. The blank-subtracted HQs from the reference data set are used to calculated blank-subtracted BTV HQs.

4.2.2 UNCERTAINTIES ASSOCIATED WITH OUTLIER VALUES

Among the upstream reference area porewater data, there are individual samples with porewater concentrations that are substantially higher than the remaining reference area data set. The reason for this is not known, and this therefore represents an uncertainty in the calculated BTVs. Consistent with USEPA (2002b) guidance, the potential outlier samples are identified in the data set, outlier tests are conducted in ProUCL (version 5.2, USEPA 2022) to determine whether the samples are statistical outliers, and the BTV calculations are conducted with and without the statistical outliers included to document the sensitivity of the BTV to the high-leverage data point. Output from the outlier tests as well as data tables identifying the outliers in the various BTV data handling scenarios discussed below are provided as Attachment C3 to this appendix.

4.2.3 DATA HANDLING SCENARIOS

BTVs and BTV HQs were calculated based on the following data set and data handling scenarios to address the uncertainty in the upstream porewater data set:

A. Combined Phase 2 and Phase 3 upstream reference area data set with all values as reported by the analytical laboratory, consistent with how data were handled throughout this BERA. Specifically, the concentrations reported by the laboratory were used for U* qualified results.

B. Combined Phase 2 and Phase 3 upstream reference area data set with statistical outlier values removed to document the sensitivity of the BTV to the high-leverage data point. Scenarios A and B, because they are based on the combined porewater data set and reported values, are most analogous to the handling of the porewater data set in the Aquatic BERA.

C. The Phase 3 upstream data set with all values as reported by the analytical laboratory. This scenario was included for comparison with scenarios E and F below.

D. The Phase 3 upstream data set with statistical outlier values removed. This scenario was included for comparison with scenarios E and F below.

E. The Phase 3 upstream data set after the concentrations of detected values in rinsate blanks have been subtracted from the reported results based on the approach described in Section 4.2.1 above. As discussed in that section, the blank-subtraction approach was only applied to the Phase 3 porewater data because of the additional uncertainty in the Phase 2 from U* qualification of toxicity modifying factors in addition to the dissolved metals concentration in porewater.

F. The Phase 3 upstream data set after the concentrations of detected values in rinsate blanks have been subtracted from the reported results and the remaining statistical outliers have been removed.

4.3 POREWATER BACKGROUND THRESHOLD VALUES AND BACKGROUND THRESHOLD VALUES HAZARD QUOTIENTS

Porewater BTVs and BTV HQs were calculated for each COPC for each of the data handling scenarios listed above. BTVs and BTV HQs from each of the data set scenarios listed above were calculated in ProUCL (version 5.2, USEPA 2022) consistent with the approach for sediment BTVs described above in Section 2.4[11]. Porewater BTVs for COPCs were calculated using the dissolved concentrations of each COPC from the upstream reference areas based on each of the data handling scenarios. The approach for calculating porewater BTV HQs, however, differed depending on the relevant benchmark:

- For porewater benchmarks that are static values (e.g., ambient water quality criteria for antimony, iron, and molybdenum, as well as some taxa-specific benchmarks; see Appendix F of this BERA), porewater BTV HQs were calculated by dividing the porewater BTV for the dissolved metal by the porewater benchmark.
- For porewater benchmarks that are functions of location-specific data (e.g., pH, dissolved organic carbon, and hardness) (Appendix F of this BERA), BTV HQs were calculated as follows:
  - Toxic units were calculated for each reference location sample using the sample-specific data.
- The porewater BTV HQ was calculated in ProUCL based on the distribution of HQs from the reference data set using the same statistical approach described in Section 2.4.

Because the UTLs calculated in ProUCL sometimes exceeded the maximum reported result in the reference data set, both the data set maximum and calculated UTL are reported in Table C-11. However, the minimum of those two values was selected as the BTV for that data scenario.

Of the various data set scenarios evaluated above, the calculated BTVs are most sensitive to the handling of statistical outliers. For example, removal of the outlier from the Phase 3 data set decreased the BTV HQ for porewater copper (based on the aquatic life benchmark) by more than 50 percent (from 7.4 to 3.4) while applying the blank-subtraction approach decreased the BTV HQ by approximately 20 percent (from 7.4 to 6.0).

To reflect the uncertainty in the reference area porewater data set, the BTVs and BTV HQs for each COPC are expressed as ranges based on the data set scenarios A through F summarized above. In the Aquatic BERA, the calculated exposures and risks to benthic invertebrates and fish from exposure to porewater are compared to the range of BTV HQs presented in Table C-12.

[11] The ProUCL output files from the BTV analyses are provided as Attachment C3 to this appendix.

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TABLES

Table C-1
Data Sets Used in the Sediment Background Analysis
Upper Columbia River
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Data Set	Number of Sediment Samples Used in Background Analysis	Reference
2001 EPA Stevens County Mines and Mills	9	USEPA (2002a)
2001 Expanded Site Investigation	163	USEPA (2003)
2005 Phase 1 Sediment Sampling	362	USEPA (2006a)
2009–2011 Beach Sediment Study	640 [a]	TAI (2014)
2010 White Sturgeon Sediment Toxicity Study	6	TAI (2018)
2015 Bossburg Flat Sediment and Soil Study	99 [a]	TAI (2016)
2013 Phase 2 Sediment Study	136	TAI (2017)
2019 Northport Waterfront RI [b]	63	Ecology (2019a)
2019 Phase 3 Sediment Study	105	TAI (2022)
2012–2013 AREMP Teck Trail Operations	10	Teck Metals Ltd. (2014)
2001 Trail Area Stream Sediment Background	28	Reyes et al. (2004)
2015–2016 AREMP Teck Trail Operations	10	Teck Metals Ltd. (2017)
2018 AEMP Teck Trail Operations	10	Teck Metals Ltd. (2019)
USGS: Bortleson et al. Sediment Quality Assessment 1992	0 (Incomplete metals analyte list)	USGS (2001)
Ecology: Johnson et al. Assessment of Metals Contamination in Lake Roosevelt 1986	0 (Incomplete metals analyte list)	Ecology (1989)
USGS Reformatted NURE HSSR Program	0 (Incomplete metals analyte list)	USGS (2007)
2001 Reassessment of Toxicity of Lake Roosevelt Sediments	0 (Incomplete metals analyte list)	Ecology (2001)
2007 Ecology Reconnaissance and Sediment Sampling	0 (Incomplete metals analyte list)	Ecology (2007)
Teck Golder 2007 Sediment Triad Report	0 (Incomplete metals analyte list)	Teck Metals Ltd. (2007)
2002–2003 USGS Sediment Core Sampling	0 (Total digestion preparation method)	USGS (2005)
USGS Midnite Mine Sediment Study	0 (Incomplete metals analyte list, sample preparation method [c])	USGS (2008)

Notes:
Full references presented in appendix main text.

[a] Excludes samples specifically collected for human health risk assessments, which were performed on the less than 250 micrometers (µm) sieve fraction.

[b] Samples comprise sediment locations as well as 14 soil locations below the estimated pre-1973 maximum river flood level, which are included due to their potential for seasonal inundation by the Columbia River and potential for slag deposition.

[c] Samples were sieved to < 150 µm at the time of collection.

AEMP = Aquatic Effects Monitoring Program
AREMP = Aquatic Receiving Environment Monitoring Program
ESI = expanded site inspection
HSSR = Hydrogeochemical and Stream Sediment Reconnaissance
NURE = National Uranium Resource Evaluation
PA/SI = preliminary assessment and site inspection
RI = remedial investigation
USGS = U.S. Geological Survey

Table C-2
Cluster Number Validation Indices
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Cluster Fit Metric [a]	Optimal Cluster Number
Frey (Frey and Van Groenewoud 1972)	1
Beale (Beale 1969)	2
McClain (McClain and Rao 1975)	2
Ball (Ball and Hall 1965)	3
CH (Calinski and Harabasz 1974)	3
DB (Davies and Bouldin 1979)	3
Friedman (Friedman and Rubin 1967)	3
Hartigan (Hartigan 1975)	3
KL (Krzanowski and Lai 1988)	3
Marriot (Marriot 1971)	3
Ptbiserial (Milligan 1980, 1981)	3
Rubin (Friedman and Rubin 1967)	3
Scott (Scott and Symons 1971)	3
SDindex (Halkidi et al. 2000)	3
Silhouette (Rousseeuw 1987)	3
TraceW (Milligan and Cooper 1985)	3
TrCovW (Milligan and Cooper 1985)	3
Ratkowsky (Ratkowsky and Lance 1978)	4
Dunn (Dunn 1974)	5
CCC (Sarle 1983)	6
Cindex (Hubert and Levin 1976)	6
SDbw (Halkidi and Vazirgiannis 2001)	6

Note:

[a] Further explanation of these indices and full references available from: Charrad, M., N. Ghazzali, V. Boiteau, and A. Niknafs. 2014. "NbClust: An R Package for Determining the Relevant Number of Clusters in a Data Set." *Journal of Statistical Software* 61(6): 1–36. http://www.jstatsoft.org/v61/i06/.

Table C-3
Cluster Membership by Area
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Area	Samples in Cluster (% of total)		
	1	2	3
LCR above Trail	0 (0%)	0 (0%)	39 (100%)
LCR below Trail	7 (33.3%)	14 (66.7%)	0 (0%)
OU 1 North	228 (80.6%)	47 (16.6%)	8 (2.83%)
OU 1 South	93 (28.9%)	178 (55.3%)	51 (15.8%)
OU 2 Transitional CSM Unit	16 (13.2%)	40 (33.1%)	65 (53.7%)
OU 2 Upper Lacustrine CSM Unit	1 (0.34%)	145 (49.3%)	148 (50.3%)
OU 2 Middle Lacustrine CSM Unit	0 (0%)	52 (22.3%)	181 (77.7%)
OU 2 Lower Lacustrine CSM Unit	0 (0%)	34 (19.1%)	144 (80.9%)
U.S. Tributary	0 (0%)	48 (39.3%)	74 (60.7%)
Canada Tributary	0 (0%)	1 (3.57%)	27 (96.4%)

Notes:
CSM = conceptual site model
LCR = Lower Columbia River

Table C-4
Cluster Assignments for Sediment Samples
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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	0	6	LCR above Trail	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	0	6	LCR above Trail	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	NA	NA	LCR above Trail	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	NA	NA	LCR above Trail	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	NA	NA	LCR above Trail	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	0	6	LCR above Trail	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	0	6	LCR above Trail	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	0	6	LCR above Trail	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	0	6	LCR above Trail	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	0	6	LCR above Trail	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	0	6	LCR above Trail	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	0	6	LCR above Trail	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	0	6	LCR above Trail	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	0	6	LCR above Trail	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	0	4	LCR above Trail	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	NA	NA	LCR above Trail	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	NA	NA	LCR above Trail	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	NA	NA	LCR above Trail	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	NA	NA	LCR above Trail	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	NA	NA	LCR above Trail	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	NA	NA	LCR above Trail	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	NA	NA	LCR above Trail	3
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	NA	NA	LCR below Trail	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	NA	NA	LCR below Trail	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	NA	NA	LCR below Trail	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	NA	NA	LCR below Trail	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	NA	NA	LCR below Trail	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	NA	NA	LCR below Trail	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	NA	NA	LCR below Trail	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	NA	NA	LCR below Trail	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	NA	NA	LCR below Trail	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	NA	NA	LCR below Trail	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	NA	NA	LCR below Trail	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	NA	NA	LCR below Trail	2

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	NA	NA	LCR below Trail	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	NA	NA	LCR below Trail	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	NA	NA	LCR below Trail	2
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	NA	NA	LCR below Trail	1
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	NA	NA	LCR below Trail	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	NA	NA	LCR below Trail	2
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	NA	NA	LCR below Trail	1
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	NA	NA	LCR below Trail	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	NA	NA	LCR below Trail	2
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	0	6	OU 1 North	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	0	6	OU 1 North	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	0	6	OU 1 North	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	0	6	OU 1 North	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	0	6	OU 1 North	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	0	6	OU 1 North	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	0	6	OU 1 North	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	0	6	OU 1 North	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	0	6	OU 1 North	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	0	2	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	0	3	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	0	2	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	0	2	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	0	4	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	0	3	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	0	1	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	0	1	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	0	3	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	0	2	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	0	2	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	0	4	OU 1 North	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	0	3	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	0	6	OU 1 North	2
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	0	6	OU 1 North	2
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	0	6	OU 1 North	1

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	0	6	OU 1 North	2
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	0	6	OU 1 North	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	0	6	OU 1 North	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	0	6	OU 1 North	2
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	0	6	OU 1 North	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	0	6	OU 1 North	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	0	6	OU 1 North	2
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	0	6	OU 1 North	2
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	0	6	OU 1 North	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	0	6	OU 1 North	1

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	18	30	OU 1 North	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	18	30	OU 1 North	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	0	6	OU 1 North	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	18	30	OU 1 North	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	18	30	OU 1 North	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	18	30	OU 1 North	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	6	18	OU 1 North	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	0	6	OU 1 North	1

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	6	18	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	18	30	OU 1 North	1
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	0	6	OU 1 North	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	6	18	OU 1 North	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	18	30	OU 1 North	2
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	0	6	OU 1 North	2
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	0	6	OU 1 North	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	0	6	OU 1 North	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	0	6	OU 1 North	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	0	6	OU 1 North	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	0	3	OU 1 North	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	0	6	OU 1 North	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	0	6	OU 1 North	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	0	6	OU 1 North	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	0	6	OU 1 North	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	0	3	OU 1 North	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	0	6	OU 1 North	1
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	0	4	OU 1 North	2
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	0	5	OU 1 North	1
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	0	6	OU 1 North	2
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	0	6	OU 1 North	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	0	1	OU 1 North	1
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	0	4	OU 1 North	2
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	0	6	OU 1 North	1
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	0	6	OU 1 North	2
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	18	24	OU 1 North	1
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	0	6	OU 1 North	2

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2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	6	12	OU 1 North	2
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	12	18	OU 1 North	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	0	6	OU 1 North	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	6	12	OU 1 North	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	6	12	OU 1 North	1
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	42	48	OU 1 North	2
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	6	12	OU 1 North	1
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	12	18	OU 1 North	2
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	6	12	OU 1 North	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	42	48	OU 1 North	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	12	18	OU 1 North	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	12	18	OU 1 North	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	18	24	OU 1 North	2
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	6	12	OU 1 North	1
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	36	42	OU 1 North	2
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	6	12	OU 1 North	3
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	18	24	OU 1 North	2
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	6	12	OU 1 North	1
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	12	18	OU 1 North	2
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	6	12	OU 1 North	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	12	18	OU 1 North	1
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	0	6	OU 1 North	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	0	6	OU 1 North	2
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	6	12	OU 1 North	1
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	12	18	OU 1 North	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	6	12	OU 1 North	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	42	48	OU 1 North	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	6	12	OU 1 North	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	12	18	OU 1 North	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	6	12	OU 1 North	2
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	24	30	OU 1 North	3
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	6	12	OU 1 North	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	0	6	OU 1 North	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	24	30	OU 1 North	1
2019 Northport Waterfront RI	XRF-1	XRF-1	0	6	OU 1 North	1
2019 Northport Waterfront RI	XRF-100	XRF-100	0	6	OU 1 North	2
2019 Northport Waterfront RI	XRF-11	XRF-11	0	6	OU 1 North	1

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2019 Northport Waterfront RI	XRF-24	XRF-24	0	6	OU 1 North	1
2019 Northport Waterfront RI	XRF-26	XRF-26	0	6	OU 1 North	2
2019 Northport Waterfront RI	XRF-41	XRF-41	0	6	OU 1 North	1
2019 Northport Waterfront RI	XRF-49	XRF-49	0	6	OU 1 North	1
2019 Northport Waterfront RI	XRF-50	XRF-50	0	6	OU 1 North	1
2019 Northport Waterfront RI	XRF-63	XRF-63	0	6	OU 1 North	1
2019 Northport Waterfront RI	XRF-66	XRF-66	0	6	OU 1 North	2
2019 Northport Waterfront RI	XRF-7	XRF-7	0	6	OU 1 North	1
2019 Northport Waterfront RI	XRF-96	XRF-96	0	6	OU 1 North	2
2019 Northport Waterfront RI	XRF-99	XRF-99	0	6	OU 1 North	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	NA	NA	OU 1 North	2
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	NA	NA	OU 1 North	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	NA	NA	OU 1 North	2
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	NA	NA	OU 1 North	2
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	NA	NA	OU 1 North	1
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	NA	NA	OU 1 North	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	0	2	OU 1 South	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	0	1	OU 1 South	2
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	0	2	OU 1 South	1
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	0	1	OU 1 South	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	0	5	OU 1 South	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	0	1	OU 1 South	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	0	0	OU 1 South	2
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	0	2	OU 1 South	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	0	2	OU 1 South	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	0	3	OU 1 South	1
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	0	4	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM726X1	05144448	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM715X1	05154518	0	6	OU 1 South	2

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2005 Phase 1 Sediment Sampling	RM710X3	05154540	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	0	6	OU 1 South	3
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	0	12	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	12	36	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	36	60	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	60	84	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	0	6	OU 1 South	3
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	0	6	OU 1 South	1
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	0	6	OU 1 South	2
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	0	6	OU 1 South	1
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	6	18	OU 1 South	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	0	6	OU 1 South	2

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2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	18	30	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	6	18	OU 1 South	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	18	30	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	0	6	OU 1 South	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	18	30	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	18	30	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	18	30	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	18	30	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	18	30	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	18	30	OU 1 South	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	6	18	OU 1 South	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	6	18	OU 1 South	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	6	18	OU 1 South	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	0	6	OU 1 South	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	6	18	OU 1 South	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	0	6	OU 1 South	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	6	18	OU 1 South	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	18	30	OU 1 South	3
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	0	6	OU 1 South	2

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	0	6	OU 1 South	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	0	6	OU 1 South	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	0	6	OU 1 South	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	0	6	OU 1 South	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	0	6	OU 1 South	1
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	0	6	OU 1 South	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	0	6	OU 1 South	2
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	0	6	OU 1 South	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	0	4	OU 1 South	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	0	5	OU 1 South	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	0	6	OU 1 South	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	0	2	OU 1 South	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	0	2	OU 1 South	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	0	4	OU 1 South	1
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	0	5	OU 1 South	2
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	0	1	OU 1 South	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	0	6	OU 1 South	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	0	5	OU 1 South	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	0	5	OU 1 South	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	0	1	OU 1 South	1
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	0	5	OU 1 South	2
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	0	6	OU 1 South	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	0	1	OU 1 South	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	0	4	OU 1 South	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	0	4	OU 1 South	1
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	0	4	OU 1 South	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	0	6	OU 1 South	2
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	0	4	OU 1 South	1
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	0	6	OU 1 South	2
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	0	6	OU 1 South	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	0	6	OU 1 South	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	0	6	OU 1 South	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	0	5	OU 1 South	1
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	0	6	OU 1 South	2

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	12	18	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	12	18	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	6	12	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	0	6	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	6	12	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	12	18	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	6	12	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	12	18	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	0	6	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	6	12	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	12	18	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	0	6	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	6	12	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	0	6	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	6	12	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	12	18	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	0	6	OU 1 South	2

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	0	6	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	0	6	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	6	12	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	12	18	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	0	6	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	6	12	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	0	6	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	6	12	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	12	18	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	0	6	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	0	6	OU 1 South	3
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	12	18	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	6	12	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	0	6	OU 1 South	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	0	6	OU 1 South	2
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	NA	NA	OU 1 South	1

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	NA	NA	OU 1 South	3
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	NA	NA	OU 1 South	2
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	NA	NA	OU 1 South	1

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	NA	NA	OU 1 South	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	NA	NA	OU 1 South	1
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	0	4	OU 2 Transitional CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	0	4	OU 2 Transitional CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	0	4	OU 2 Transitional CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	0	0	OU 2 Transitional CSM Unit	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	18	24	OU 2 Transitional CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	0	3	OU 2 Transitional CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	0	3	OU 2 Transitional CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	0	4	OU 2 Transitional CSM Unit	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	0	2	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	0	6	OU 2 Transitional CSM Unit	1
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	0	6	OU 2 Transitional CSM Unit	1
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	0	6	OU 2 Transitional CSM Unit	1
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	0	6	OU 2 Transitional CSM Unit	1
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	0	6	OU 2 Transitional CSM Unit	1
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	0	6	OU 2 Transitional CSM Unit	2
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	0	6	OU 2 Transitional CSM Unit	3
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	0	6	OU 2 Transitional CSM Unit	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	0	12	OU 2 Transitional CSM Unit	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	12	36	OU 2 Transitional CSM Unit	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	36	60	OU 2 Transitional CSM Unit	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	60	84	OU 2 Transitional CSM Unit	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	84	108	OU 2 Transitional CSM Unit	1

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2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	18	30	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	18	30	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	0	6	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	6	18	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	0	6	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	6	18	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	0	6	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	6	18	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	18	30	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	0	6	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	6	18	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	18	30	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	0	6	OU 2 Transitional CSM Unit	3

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2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	0	6	OU 2 Transitional CSM Unit	3
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	0	6	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	0	6	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	0	6	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	0	6	OU 2 Transitional CSM Unit	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	0	6	OU 2 Transitional CSM Unit	2
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	0	6	OU 2 Transitional CSM Unit	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	0	5	OU 2 Transitional CSM Unit	1
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	0	6	OU 2 Transitional CSM Unit	2
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	0	6	OU 2 Transitional CSM Unit	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	0	6	OU 2 Transitional CSM Unit	1
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	0	6	OU 2 Transitional CSM Unit	3
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	0	6	OU 2 Transitional CSM Unit	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	0	6	OU 2 Transitional CSM Unit	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	0	6	OU 2 Transitional CSM Unit	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	0	6	OU 2 Transitional CSM Unit	2
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	0	6	OU 2 Transitional CSM Unit	3
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	0	6	OU 2 Transitional CSM Unit	1
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	0	4	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	0	4	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	0	4	OU 2 Upper Lacustrine CSM Unit	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	0	2	OU 2 Upper Lacustrine CSM Unit	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	0	4	OU 2 Upper Lacustrine CSM Unit	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	0	7	OU 2 Upper Lacustrine CSM Unit	3
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	0	1	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	0	2	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	0	3	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	0	4	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	0	4	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	0	8	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	0	1	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	18	24	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	0	6	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	0	7	OU 2 Upper Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	0	5	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM679X3	05154449	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM697B3	05154474	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM673B1	05154479	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM670X2	05154498	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM664X3	05164426	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM661X2	05164427	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM692C1	05164498	36	60	OU 2 Upper Lacustrine CSM Unit	1

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM661C1	05174447	12	36	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	0	6	OU 2 Upper Lacustrine CSM Unit	3

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	0	12	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	12	36	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	60	84	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	0	12	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	12	36	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	36	60	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	60	84	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	0	6	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	0	12	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	36	60	OU 2 Upper Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	60	84	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	18	30	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	18	30	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	0	6	OU 2 Upper Lacustrine CSM Unit	3

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	18	30	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	18	30	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	18	30	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	18	30	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	18	30	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	0	6	OU 2 Upper Lacustrine CSM Unit	3

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2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	18	30	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	18	30	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	18	30	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	6	18	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	6	18	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	18	30	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	0	6	OU 2 Upper Lacustrine CSM Unit	2

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2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	0	6	OU 2 Upper Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	0	6	OU 2 Upper Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	0	6	OU 2 Upper Lacustrine CSM Unit	3
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	0	6	OU 2 Upper Lacustrine CSM Unit	2

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	0	6	OU 2 Upper Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	0	6	OU 2 Upper Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM639T1	05174456	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM637C1	05174462	12	36	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM637X4	05174479	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	0	6	OU 2 Middle Lacustrine CSM Unit	2

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	0	12	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	12	36	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	36	60	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	60	84	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	0	12	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	36	60	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	0	6	OU 2 Middle Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	0	6	OU 2 Middle Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	0	6	OU 2 Middle Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	0	6	OU 2 Middle Lacustrine CSM Unit	3

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	0	6	OU 2 Middle Lacustrine CSM Unit	3

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	6	18	OU 2 Middle Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	18	30	OU 2 Middle Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	6	18	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	18	30	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-END	SD-END	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	0	6	OU 2 Middle Lacustrine CSM Unit	3

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	0	6	OU 2 Middle Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	0	6	OU 2 Middle Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	0	6	OU 2 Middle Lacustrine CSM Unit	2
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	0	6	OU 2 Middle Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	0	6	OU 2 Middle Lacustrine CSM Unit	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	0	6	OU 2 Middle Lacustrine CSM Unit	3
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	0	6	OU 2 Middle Lacustrine CSM Unit	3
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	0	6	OU 2 Middle Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	0	6	OU 2 Middle Lacustrine CSM Unit	2
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	0	3	OU 2 Lower Lacustrine CSM Unit	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	0	4	OU 2 Lower Lacustrine CSM Unit	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	0	4	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM603X2	05174431	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM605C1	05184414	12	36	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	0	6	OU 2 Lower Lacustrine CSM Unit	3

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	0	12	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	12	36	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	36	60	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	60	84	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	84	108	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	0	6	OU 2 Lower Lacustrine CSM Unit	3
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	0	6	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	0	12	OU 2 Lower Lacustrine CSM Unit	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	36	60	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	6	18	OU 2 Lower Lacustrine CSM Unit	3

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	6	18	OU 2 Lower Lacustrine CSM Unit	3

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	6	18	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	18	30	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	0	6	OU 2 Lower Lacustrine CSM Unit	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	0	6	OU 2 Lower Lacustrine CSM Unit	3
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	0	6	OU 2 Lower Lacustrine CSM Unit	2

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2013 Phase 2 Sediment Study	8-B5	SE-8-B5	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	0	6	OU 2 Lower Lacustrine CSM Unit	3
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	0	6	OU 2 Lower Lacustrine CSM Unit	2
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	0	6	OU 2 Lower Lacustrine CSM Unit	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	0	6	OU 2 Lower Lacustrine CSM Unit	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	0	1	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	0	3	US Tributary	3
2001 Expanded Site Investigation	Stranger Creek	TS004	0	3	US Tributary	3
2001 Expanded Site Investigation	Hall Creek	TS005	0	2	US Tributary	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	0	4	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	0	1	US Tributary	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	0	3	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	0	3	US Tributary	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	0	3	US Tributary	3
2001 Expanded Site Investigation	Magee Creek	TS013	0	4	US Tributary	2
2001 Expanded Site Investigation	Jennings Creek	TS014	0	3	US Tributary	2
2001 Expanded Site Investigation	Little Jim Creek	TS015	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	0	1	US Tributary	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	0	1	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	0	1	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	0	3	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	0	2	US Tributary	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	0	3	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	0	5	US Tributary	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	0	2	US Tributary	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	0	3	US Tributary	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	0	1	US Tributary	2
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	0	2	US Tributary	3
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	0	8	US Tributary	2
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	0	2	US Tributary	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	0	3	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	0	4	US Tributary	2
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	0	6	US Tributary	3
2001 Expanded Site Investigation	Unproposed sampling location	TS037	0	4	US Tributary	2
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	0	3	US Tributary	3
2001 Expanded Site Investigation	Martin Creek	TS039	0	2	US Tributary	3

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Cluster Assignments for Sediment Samples
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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	0	3	US Tributary	3
2001 Expanded Site Investigation	Roper Creek	TS041	0	2	US Tributary	3
2001 Expanded Site Investigation	Rickey Creek	TS042	0	1	US Tributary	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	0	4	US Tributary	2
2001 Expanded Site Investigation	Hallam Creek	TS044	0	4	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	0	7	US Tributary	2
2001 Expanded Site Investigation	Mingo Creek	TS046	0	2	US Tributary	3
2001 Expanded Site Investigation	Colville River	TS047	0	2	US Tributary	3
2001 Expanded Site Investigation	Sherman Creek	TS048	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	0	2	US Tributary	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	0	3	US Tributary	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	0	3	US Tributary	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	0	4	US Tributary	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	0	1	US Tributary	3
2001 Expanded Site Investigation	Martin Spring Creek	TS056	0	2	US Tributary	2
2001 Expanded Site Investigation	Pingston Creek	TS057	0	3	US Tributary	2
2001 Expanded Site Investigation	Nancy Creek	TS058	0	4	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	0	5	US Tributary	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	0	1	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	0	3	US Tributary	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	0	7	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	0	4	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	0	4	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	0	1	US Tributary	3
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	0	2	US Tributary	2
2001 Expanded Site Investigation	Deadman Creek	TS067	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	0	1	US Tributary	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	0	3	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	0	8	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	0	3	US Tributary	2
2001 Expanded Site Investigation	Matsen Creek	TS073	0	3	US Tributary	3
2001 Expanded Site Investigation	Doyle Creek	TS074	0	5	US Tributary	2
2001 Expanded Site Investigation	Kettle River, One	TS075	0	2	US Tributary	3
2001 Expanded Site Investigation	China Creek	TS076	0	1	US Tributary	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	0	1	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	0	1	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	0	1	US Tributary	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	0	1	US Tributary	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	0	1	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	0	1	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	0	2	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	0	2	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	0	1	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	NA	NA	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	0	1	US Tributary	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	0	1	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	0	2	US Tributary	2
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	0	3	US Tributary	3

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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	0	6	US Tributary	2
2001 Expanded Site Investigation	Flat Creek	TS092	0	1	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	0	2	US Tributary	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	0	3	US Tributary	2
2001 Expanded Site Investigation	Crown Creek	TS095	0	2	US Tributary	2
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	0	5	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	0	3	US Tributary	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	0	3	US Tributary	2
2001 Expanded Site Investigation	Onion Creek	TS099	0	4	US Tributary	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	0	2	US Tributary	2
2001 Expanded Site Investigation	Squaw Creek	TS101	0	4	US Tributary	3
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	0	1	US Tributary	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	0	3	US Tributary	2
2001 Expanded Site Investigation	Bear Creek	TS104	0	2	US Tributary	2
2001 Expanded Site Investigation	Deep Creek	TS105	0	4	US Tributary	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	0	2	US Tributary	3
2001 Expanded Site Investigation	Quartz Creek	TS107	0	4	US Tributary	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	0	5	US Tributary	2
2001 Expanded Site Investigation	Scriver Creek	TS109	0	3	US Tributary	3
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	0	8	US Tributary	2
2005 Phase 1 Sediment Sampling	RM721R1	05164477	0	6	US Tributary	3
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	0	6	US Tributary	2
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	0	6	US Tributary	3
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	0	6	US Tributary	2
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	0	6	US Tributary	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	0	6	US Tributary	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	0	6	US Tributary	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	0	4	US Tributary	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	0	6	US Tributary	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	0	6	US Tributary	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	0	6	US Tributary	3
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	0	6	US Tributary	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.	NA	NA	Canada Tributary	3

Table C-4
Cluster Assignments for Sediment Samples
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Data Set	Location ID	Sample ID	Start Depth (inches)	End Depth (inches)	Area	Cluster Assignment
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.	NA	NA	Canada Tributary	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.	NA	NA	Canada Tributary	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR	NA	NA	Canada Tributary	3

Notes:
AEMP = Aquatic Effects Monitoring Program
AREMP = Aquatic Receiving Environment Monitoring Program
BC = British Columbia
CSM = conceptual site model
ESI = expanded site inspection
LCR = Lower Columbia River
NA = not available
SI = site inspection
UCR Site = Upper Columbia River Site

Table C-5
Cluster Reliability Assessment Based on 1000 Bootstrap Replications
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Original Cluster	Bootstrap Assigned Cluster		
	1	2	3
1	86.0	13.8	0.3
2	1.5	78.4	20.2
3	0.0	2.1	97.9

Table C-6
Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
Upper Columbia River
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Sample ID	Area	Percent Fidelity
TS078	US Tributary	50
SDU-03-COR-02-002-2mm	OU 1 South	50.09
MJ4F89	OU 2 Middle Lacustrine CSM Unit	50.23
MJ4G11	OU 2 Lower Lacustrine CSM Unit	50.61
SDU-04-ICS-2mm	OU 1 South	50.69
CR-LYA2	OU 2 Upper Lacustrine CSM Unit	50.95
MJ4F85	OU 1 South	60.28
CR-HTB1	OU 2 Upper Lacustrine CSM Unit	62.61
MJ4F22	OU 2 Transitional CSM Unit	62.63
TS061	US Tributary	62.73
SD-WCA	OU 2 Middle Lacustrine CSM Unit	62.79
TS099	US Tributary	63.6
TS008	US Tributary	63.71
05154510	OU 2 Middle Lacustrine CSM Unit	66.59
SDU-06-COR-02-002-2mm	OU 1 South	66.59
SE-7-B2	OU 2 Middle Lacustrine CSM Unit	66.64
CR-EVD1	OU 1 South	67.05
MJ4F91	OU 2 Middle Lacustrine CSM Unit	70.23
MJ4F04	OU 2 Upper Lacustrine CSM Unit	71.57
CS027	OU 2 Transitional CSM Unit	71.6
TS065	US Tributary	75.09
CR-BBB1	OU 2 Upper Lacustrine CSM Unit	75.13
REF015-SE-1-092619	LCR above Trail	75.13
TS033	US Tributary	75.13
SD-WCE	OU 2 Middle Lacustrine CSM Unit	75.22
CS007	OU 2 Upper Lacustrine CSM Unit	75.26
CR-KLD2	OU 2 Transitional CSM Unit	75.56
TS011	US Tributary	80.07
CR-LYD3	OU 2 Upper Lacustrine CSM Unit	80.11
MJ4FG0	OU 2 Lower Lacustrine CSM Unit	80.11
MJ4F88	OU 2 Middle Lacustrine CSM Unit	80.14
MJ4G06	OU 2 Middle Lacustrine CSM Unit	80.14
CS008	OU 2 Upper Lacustrine CSM Unit	80.2
MJ4FB7	OU 2 Transitional CSM Unit	81.78
CR-BCD3	OU 2 Upper Lacustrine CSM Unit	83.2
MJ4FB8	OU 2 Transitional CSM Unit	83.36
SDU-06-COR-03-002-2mm	OU 1 South	83.41
SDU-06-COR-03-003-2mm	OU 1 South	83.41
CR-DSE3	OU 1 North	83.43
CR-BCD1	OU 2 Upper Lacustrine CSM Unit	83.45

Table C-6
Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
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Sample ID	Area	Percent Fidelity
MJ4EZ8	OU 2 Upper Lacustrine CSM Unit	85.74
MJ4F93	OU 2 Middle Lacustrine CSM Unit	85.83
MJ4FE9	OU 2 Lower Lacustrine CSM Unit	85.83
TS109	US Tributary	85.83
SD-BCC-1	OU 2 Upper Lacustrine CSM Unit	87.23
MJ4FG2	OU 2 Lower Lacustrine CSM Unit	87.54
CR-KLD3	OU 2 Transitional CSM Unit	87.55
F-1-COR-01-002-2mm	OU 1 South	87.55
MJ4F64	OU 2 Middle Lacustrine CSM Unit	87.55
SD-BBA	OU 2 Upper Lacustrine CSM Unit	87.58
SD-BBE	OU 2 Upper Lacustrine CSM Unit	87.59
CR-BCE2	OU 2 Upper Lacustrine CSM Unit	88.79
CR-BCC1	OU 2 Upper Lacustrine CSM Unit	88.84
CR-NAD1	OU 2 Middle Lacustrine CSM Unit	88.91
MJ4FE8	OU 2 Lower Lacustrine CSM Unit	88.91
CR-KFB1	OU 2 Transitional CSM Unit	88.92
MJ4F92	OU 2 Middle Lacustrine CSM Unit	88.93
MJ4FF9	OU 2 Middle Lacustrine CSM Unit	88.95
MJ4FF0	OU 2 Lower Lacustrine CSM Unit	88.98
MJ4G30	OU 2 Lower Lacustrine CSM Unit	88.99
TS067	US Tributary	90.01
MJ4F66	OU 2 Middle Lacustrine CSM Unit	90.04
MJ4FG1	OU 2 Lower Lacustrine CSM Unit	90.04
SE-4-R5	OU 2 Transitional CSM Unit	90.04
MJ4F30	OU 2 Transitional CSM Unit	90.05
MJ4F50	OU 2 Upper Lacustrine CSM Unit	90.06
CR-BFD2	OU 1 South	90.93
CR-BCD2	OU 2 Upper Lacustrine CSM Unit	93.35
SD-NAD	OU 2 Middle Lacustrine CSM Unit	99.65
SE-6B-C3	OU 2 Middle Lacustrine CSM Unit	99.82
MJ4F51	OU 2 Upper Lacustrine CSM Unit	99.86
MJ4FM1	OU 2 Middle Lacustrine CSM Unit	99.88
SD-WCD	OU 2 Middle Lacustrine CSM Unit	99.91
MJ4F98	OU 2 Middle Lacustrine CSM Unit	99.92
CS002	OU 2 Lower Lacustrine CSM Unit	99.93
05154439	OU 2 Transitional CSM Unit	100
05154449	OU 2 Upper Lacustrine CSM Unit	100
05154479	OU 2 Upper Lacustrine CSM Unit	100
05164426	OU 2 Upper Lacustrine CSM Unit	100
05164451	OU 2 Upper Lacustrine CSM Unit	100

Table C-6
Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
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Sample ID	Area	Percent Fidelity
05164458	OU 2 Upper Lacustrine CSM Unit	100
05164477	US Tributary	100
05164484	OU 2 Upper Lacustrine CSM Unit	100
05174414	OU 2 Middle Lacustrine CSM Unit	100
05174462	OU 2 Middle Lacustrine CSM Unit	100
05184414	OU 2 Lower Lacustrine CSM Unit	100
2012-dep-ref-1	LCR above Trail	100
2012-dep-ref-2	LCR above Trail	100
2012-dep-ref-3	LCR above Trail	100
2015-dep-ref-1	LCR above Trail	100
2015-dep-ref-2	LCR above Trail	100
2015-dep-ref-3	LCR above Trail	100
2018-dep-ref-1	LCR above Trail	100
2018-dep-ref-2	LCR above Trail	100
2018-dep-ref-3	LCR above Trail	100
BOSS-012-2mm	OU 1 South	100
BOSS-019-2mm	OU 1 South	100
CR-AAA1	OU 2 Upper Lacustrine CSM Unit	100
CR-AAA2	OU 2 Upper Lacustrine CSM Unit	100
CR-AAA3	OU 2 Upper Lacustrine CSM Unit	100
CR-AAB1	OU 2 Upper Lacustrine CSM Unit	100
CR-AAB2	OU 2 Upper Lacustrine CSM Unit	100
CR-AAB3	OU 2 Upper Lacustrine CSM Unit	100
CR-AAC1	OU 2 Upper Lacustrine CSM Unit	100
CR-AAD1	OU 2 Upper Lacustrine CSM Unit	100
CR-AAD2	OU 2 Upper Lacustrine CSM Unit	100
CR-AAD3	OU 2 Upper Lacustrine CSM Unit	100
CR-AAE1	OU 2 Upper Lacustrine CSM Unit	100
CR-AAE2	OU 2 Upper Lacustrine CSM Unit	100
CR-AAE3	OU 2 Upper Lacustrine CSM Unit	100
CR-BBA1	OU 2 Upper Lacustrine CSM Unit	100
CR-BBA2	OU 2 Upper Lacustrine CSM Unit	100
CR-BBA3	OU 2 Upper Lacustrine CSM Unit	100
CR-BBC3	OU 2 Upper Lacustrine CSM Unit	100
CR-BBD2	OU 2 Upper Lacustrine CSM Unit	100
CR-BBD3	OU 2 Upper Lacustrine CSM Unit	100
CR-BBE2	OU 2 Upper Lacustrine CSM Unit	100
CR-BBE3	OU 2 Upper Lacustrine CSM Unit	100
CR-BCA1	OU 2 Upper Lacustrine CSM Unit	100
CR-BCA2	OU 2 Upper Lacustrine CSM Unit	100

Table C-6
Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
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Sample ID	Area	Percent Fidelity
CR-BCA3	OU 2 Upper Lacustrine CSM Unit	100
CR-BCB1	OU 2 Upper Lacustrine CSM Unit	100
CR-BCB2	OU 2 Upper Lacustrine CSM Unit	100
CR-BCB3	OU 2 Upper Lacustrine CSM Unit	100
CR-BCC2	OU 2 Upper Lacustrine CSM Unit	100
CR-BCC3	OU 2 Upper Lacustrine CSM Unit	100
CR-BCE1	OU 2 Upper Lacustrine CSM Unit	100
CR-BCE3	OU 2 Upper Lacustrine CSM Unit	100
CR-BFA3	OU 1 South	100
CR-BFB3	OU 1 South	100
CR-BFC3	OU 1 South	100
CR-BFD3	OU 1 South	100
CR-CFB3	OU 2 Upper Lacustrine CSM Unit	100
CR-CFE3	OU 2 Upper Lacustrine CSM Unit	100
CR-CRA1	OU 2 Upper Lacustrine CSM Unit	100
CR-CRA2	OU 2 Upper Lacustrine CSM Unit	100
CR-CRA3	OU 2 Upper Lacustrine CSM Unit	100
CR-CRB1	OU 2 Upper Lacustrine CSM Unit	100
CR-CRB2	OU 2 Upper Lacustrine CSM Unit	100
CR-CRB3	OU 2 Upper Lacustrine CSM Unit	100
CR-CRC1	OU 2 Upper Lacustrine CSM Unit	100
CR-CRC3	OU 2 Upper Lacustrine CSM Unit	100
CR-CRD1	OU 2 Upper Lacustrine CSM Unit	100
CR-CRD2	OU 2 Upper Lacustrine CSM Unit	100
CR-CRD3	OU 2 Upper Lacustrine CSM Unit	100
CR-CRE1	OU 2 Upper Lacustrine CSM Unit	100
CR-CRE2	OU 2 Upper Lacustrine CSM Unit	100
CR-CSA1	OU 2 Lower Lacustrine CSM Unit	100
CR-CSA2	OU 2 Lower Lacustrine CSM Unit	100
CR-CSA3	OU 2 Lower Lacustrine CSM Unit	100
CR-CSB1	OU 2 Lower Lacustrine CSM Unit	100
CR-CSB2	OU 2 Lower Lacustrine CSM Unit	100
CR-CSB3	OU 2 Lower Lacustrine CSM Unit	100
CR-CSC1	OU 2 Lower Lacustrine CSM Unit	100
CR-CSC2	OU 2 Lower Lacustrine CSM Unit	100
CR-CSC3	OU 2 Lower Lacustrine CSM Unit	100
CR-CSD1	OU 2 Lower Lacustrine CSM Unit	100
CR-CSD2-1	OU 2 Lower Lacustrine CSM Unit	100
CR-CSD3	OU 2 Lower Lacustrine CSM Unit	100
CR-CSE1	OU 2 Lower Lacustrine CSM Unit	100

Table C-6
Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
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Sample ID	Area	Percent Fidelity
CR-CSE2	OU 2 Lower Lacustrine CSM Unit	100
CR-CSE3	OU 2 Lower Lacustrine CSM Unit	100
CR-ENA1	OU 2 Middle Lacustrine CSM Unit	100
CR-ENA2	OU 2 Middle Lacustrine CSM Unit	100
CR-ENA3	OU 2 Middle Lacustrine CSM Unit	100
CR-ENB1	OU 2 Middle Lacustrine CSM Unit	100
CR-ENB2	OU 2 Middle Lacustrine CSM Unit	100
CR-ENB3	OU 2 Middle Lacustrine CSM Unit	100
CR-ENC1-1	OU 2 Middle Lacustrine CSM Unit	100
CR-ENC2	OU 2 Middle Lacustrine CSM Unit	100
CR-ENC3	OU 2 Middle Lacustrine CSM Unit	100
CR-END1	OU 2 Middle Lacustrine CSM Unit	100
CR-END2	OU 2 Middle Lacustrine CSM Unit	100
CR-END3	OU 2 Middle Lacustrine CSM Unit	100
CR-ENE1	OU 2 Middle Lacustrine CSM Unit	100
CR-ENE2	OU 2 Middle Lacustrine CSM Unit	100
CR-ENE3	OU 2 Middle Lacustrine CSM Unit	100
CR-EVA2	OU 1 South	100
CR-EVA3	OU 1 South	100
CR-EVC3	OU 1 South	100
CR-EVE3	OU 1 South	100
CR-HCA1	OU 2 Middle Lacustrine CSM Unit	100
CR-HCA2	OU 2 Middle Lacustrine CSM Unit	100
CR-HCA3	OU 2 Middle Lacustrine CSM Unit	100
CR-HCB1	OU 2 Middle Lacustrine CSM Unit	100
CR-HCB2	OU 2 Middle Lacustrine CSM Unit	100
CR-HCB3	OU 2 Middle Lacustrine CSM Unit	100
CR-HCC1	OU 2 Middle Lacustrine CSM Unit	100
CR-HCC2	OU 2 Middle Lacustrine CSM Unit	100
CR-HCC3	OU 2 Middle Lacustrine CSM Unit	100
CR-HCD1	OU 2 Middle Lacustrine CSM Unit	100
CR-HCD2	OU 2 Middle Lacustrine CSM Unit	100
CR-HCD3	OU 2 Middle Lacustrine CSM Unit	100
CR-HCE1	OU 2 Middle Lacustrine CSM Unit	100
CR-HCE2	OU 2 Middle Lacustrine CSM Unit	100
CR-HCE3	OU 2 Middle Lacustrine CSM Unit	100
CR-HTB2	OU 2 Upper Lacustrine CSM Unit	100
CR-HTB3	OU 2 Upper Lacustrine CSM Unit	100
CR-HTC1	OU 2 Upper Lacustrine CSM Unit	100
CR-HTD1	OU 2 Upper Lacustrine CSM Unit	100

Table C-6
Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
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Sample ID	Area	Percent Fidelity
CR-HTD2	OU 2 Upper Lacustrine CSM Unit	100
CR-HTD3-1	OU 2 Upper Lacustrine CSM Unit	100
CR-HTE1	OU 2 Upper Lacustrine CSM Unit	100
CR-HTE2	OU 2 Upper Lacustrine CSM Unit	100
CR-HTE3	OU 2 Upper Lacustrine CSM Unit	100
CR-JBA1	OU 2 Lower Lacustrine CSM Unit	100
CR-JBA2	OU 2 Lower Lacustrine CSM Unit	100
CR-JBA3	OU 2 Lower Lacustrine CSM Unit	100
CR-JBB1	OU 2 Lower Lacustrine CSM Unit	100
CR-JBB2	OU 2 Lower Lacustrine CSM Unit	100
CR-JBB3	OU 2 Lower Lacustrine CSM Unit	100
CR-JBC1	OU 2 Lower Lacustrine CSM Unit	100
CR-JBC2	OU 2 Lower Lacustrine CSM Unit	100
CR-JBC3	OU 2 Lower Lacustrine CSM Unit	100
CR-JBD1	OU 2 Lower Lacustrine CSM Unit	100
CR-JBD2	OU 2 Lower Lacustrine CSM Unit	100
CR-JBD3	OU 2 Lower Lacustrine CSM Unit	100
CR-JBE1	OU 2 Lower Lacustrine CSM Unit	100
CR-JBE2	OU 2 Lower Lacustrine CSM Unit	100
CR-JBE3	OU 2 Lower Lacustrine CSM Unit	100
CR-KFA1	OU 2 Transitional CSM Unit	100
CR-KFA2	OU 2 Transitional CSM Unit	100
CR-KFA3	OU 2 Transitional CSM Unit	100
CR-KFB2-1	OU 2 Transitional CSM Unit	100
CR-KFB3	OU 2 Transitional CSM Unit	100
CR-KFC1	OU 2 Transitional CSM Unit	100
CR-KFC2	OU 2 Transitional CSM Unit	100
CR-KFC3	OU 2 Transitional CSM Unit	100
CR-KFD1	OU 2 Transitional CSM Unit	100
CR-KFD2	OU 2 Transitional CSM Unit	100
CR-KFD3	OU 2 Transitional CSM Unit	100
CR-KFE1	OU 2 Transitional CSM Unit	100
CR-KFE2	OU 2 Transitional CSM Unit	100
CR-KFE3	OU 2 Transitional CSM Unit	100
CR-KLA1	OU 2 Transitional CSM Unit	100
CR-KLA2	OU 2 Transitional CSM Unit	100
CR-KLA3-1	OU 2 Transitional CSM Unit	100
CR-KLB1	OU 2 Transitional CSM Unit	100
CR-KLB2	OU 2 Transitional CSM Unit	100
CR-KLC1	OU 2 Transitional CSM Unit	100

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Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
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Sample ID	Area	Percent Fidelity
CR-KLC2	OU 2 Transitional CSM Unit	100
CR-KLD1	OU 2 Transitional CSM Unit	100
CR-KLE1	OU 2 Transitional CSM Unit	100
CR-KLE2	OU 2 Transitional CSM Unit	100
CR-KLE3	OU 2 Transitional CSM Unit	100
CR-LYA1	OU 2 Upper Lacustrine CSM Unit	100
CR-LYC3	OU 2 Upper Lacustrine CSM Unit	100
CR-MGA1	OU 2 Middle Lacustrine CSM Unit	100
CR-MGA2	OU 2 Middle Lacustrine CSM Unit	100
CR-MGA3	OU 2 Middle Lacustrine CSM Unit	100
CR-MGB1	OU 2 Middle Lacustrine CSM Unit	100
CR-MGB2	OU 2 Middle Lacustrine CSM Unit	100
CR-MGB3	OU 2 Middle Lacustrine CSM Unit	100
CR-MGC1	OU 2 Middle Lacustrine CSM Unit	100
CR-MGC2	OU 2 Middle Lacustrine CSM Unit	100
CR-MGC3	OU 2 Middle Lacustrine CSM Unit	100
CR-MGD1	OU 2 Middle Lacustrine CSM Unit	100
CR-MGD2	OU 2 Middle Lacustrine CSM Unit	100
CR-MGD3	OU 2 Middle Lacustrine CSM Unit	100
CR-MGE1-1	OU 2 Middle Lacustrine CSM Unit	100
CR-MGE2	OU 2 Middle Lacustrine CSM Unit	100
CR-MGE3	OU 2 Middle Lacustrine CSM Unit	100
CR-MPA1	OU 2 Middle Lacustrine CSM Unit	100
CR-MPA2	OU 2 Middle Lacustrine CSM Unit	100
CR-MPA3	OU 2 Middle Lacustrine CSM Unit	100
CR-MPB1	OU 2 Middle Lacustrine CSM Unit	100
CR-MPB2	OU 2 Middle Lacustrine CSM Unit	100
CR-MPB3	OU 2 Middle Lacustrine CSM Unit	100
CR-MPC1	OU 2 Middle Lacustrine CSM Unit	100
CR-MPC2	OU 2 Middle Lacustrine CSM Unit	100
CR-MPC3	OU 2 Middle Lacustrine CSM Unit	100
CR-MPD1	OU 2 Middle Lacustrine CSM Unit	100
CR-MPD2	OU 2 Middle Lacustrine CSM Unit	100
CR-MPD3	OU 2 Middle Lacustrine CSM Unit	100
CR-MPE1	OU 2 Middle Lacustrine CSM Unit	100
CR-MPE2	OU 2 Middle Lacustrine CSM Unit	100
CR-MPE3	OU 2 Middle Lacustrine CSM Unit	100
CR-NAA1	OU 2 Middle Lacustrine CSM Unit	100
CR-NAA2	OU 2 Middle Lacustrine CSM Unit	100
CR-NAA3	OU 2 Middle Lacustrine CSM Unit	100

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Sample ID	Area	Percent Fidelity
CR-NAB1	OU 2 Middle Lacustrine CSM Unit	100
CR-NAB2	OU 2 Middle Lacustrine CSM Unit	100
CR-NAB3	OU 2 Middle Lacustrine CSM Unit	100
CR-NAC1	OU 2 Middle Lacustrine CSM Unit	100
CR-NAC2-1	OU 2 Middle Lacustrine CSM Unit	100
CR-NAC3	OU 2 Middle Lacustrine CSM Unit	100
CR-NAD2	OU 2 Middle Lacustrine CSM Unit	100
CR-NAD3	OU 2 Middle Lacustrine CSM Unit	100
CR-NAE1	OU 2 Middle Lacustrine CSM Unit	100
CR-NAE2	OU 2 Middle Lacustrine CSM Unit	100
CR-NAE3	OU 2 Middle Lacustrine CSM Unit	100
CR-NPA3	OU 1 North	100
CR-NPB3	OU 1 North	100
CR-NPC3	OU 1 North	100
CR-NPD3	OU 1 North	100
CR-NPE2	OU 1 North	100
CR-NZA1	OU 2 Upper Lacustrine CSM Unit	100
CR-NZA2	OU 2 Upper Lacustrine CSM Unit	100
CR-NZA3	OU 2 Upper Lacustrine CSM Unit	100
CR-NZB1	OU 2 Upper Lacustrine CSM Unit	100
CR-NZB2	OU 2 Upper Lacustrine CSM Unit	100
CR-NZB3	OU 2 Upper Lacustrine CSM Unit	100
CR-NZC1	OU 2 Upper Lacustrine CSM Unit	100
CR-NZC2	OU 2 Upper Lacustrine CSM Unit	100
CR-NZC3	OU 2 Upper Lacustrine CSM Unit	100
CR-NZD1	OU 2 Upper Lacustrine CSM Unit	100
CR-NZD2	OU 2 Upper Lacustrine CSM Unit	100
CR-NZD3	OU 2 Upper Lacustrine CSM Unit	100
CR-NZE1	OU 2 Upper Lacustrine CSM Unit	100
CR-NZE2	OU 2 Upper Lacustrine CSM Unit	100
CR-NZE3	OU 2 Upper Lacustrine CSM Unit	100
CR-SBA1	OU 2 Middle Lacustrine CSM Unit	100
CR-SBA2	OU 2 Middle Lacustrine CSM Unit	100
CR-SBA3	OU 2 Middle Lacustrine CSM Unit	100
CR-SBB1	OU 2 Middle Lacustrine CSM Unit	100
CR-SBB2	OU 2 Middle Lacustrine CSM Unit	100
CR-SBB3	OU 2 Middle Lacustrine CSM Unit	100
CR-SBC1	OU 2 Middle Lacustrine CSM Unit	100
CR-SBC2	OU 2 Middle Lacustrine CSM Unit	100
CR-SBC3	OU 2 Middle Lacustrine CSM Unit	100

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Sample ID	Area	Percent Fidelity
CR-SBD1	OU 2 Middle Lacustrine CSM Unit	100
CR-SBD2	OU 2 Middle Lacustrine CSM Unit	100
CR-SBD3	OU 2 Middle Lacustrine CSM Unit	100
CR-SBE1	OU 2 Middle Lacustrine CSM Unit	100
CR-SBE2	OU 2 Middle Lacustrine CSM Unit	100
CR-SBE3	OU 2 Middle Lacustrine CSM Unit	100
CR-SCA1	OU 2 Lower Lacustrine CSM Unit	100
CR-SCA2	OU 2 Lower Lacustrine CSM Unit	100
CR-SCA3	OU 2 Lower Lacustrine CSM Unit	100
CR-SCB1	OU 2 Lower Lacustrine CSM Unit	100
CR-SCB2	OU 2 Lower Lacustrine CSM Unit	100
CR-SCB3	OU 2 Lower Lacustrine CSM Unit	100
CR-SCC1	OU 2 Lower Lacustrine CSM Unit	100
CR-SCC2	OU 2 Lower Lacustrine CSM Unit	100
CR-SCC3	OU 2 Lower Lacustrine CSM Unit	100
CR-SCD1-1	OU 2 Lower Lacustrine CSM Unit	100
CR-SCD2	OU 2 Lower Lacustrine CSM Unit	100
CR-SCD3	OU 2 Lower Lacustrine CSM Unit	100
CR-SCE1	OU 2 Lower Lacustrine CSM Unit	100
CR-SCE2	OU 2 Lower Lacustrine CSM Unit	100
CR-SCE3	OU 2 Lower Lacustrine CSM Unit	100
CR-SRA2	OU 1 South	100
CR-SRA3	OU 1 South	100
CR-SRB2	OU 1 South	100
CR-SRB3	OU 1 South	100
CR-SRC3	OU 1 South	100
CR-SRD1	OU 1 South	100
CR-SRD2	OU 1 South	100
CR-SRD3	OU 1 South	100
CR-SRE1	OU 1 South	100
CR-SRE2	OU 1 South	100
CR-SRE3	OU 1 South	100
CR-SWA1	OU 2 Lower Lacustrine CSM Unit	100
CR-SWA2	OU 2 Lower Lacustrine CSM Unit	100
CR-SWA3	OU 2 Lower Lacustrine CSM Unit	100
CR-SWB1	OU 2 Lower Lacustrine CSM Unit	100
CR-SWB2	OU 2 Lower Lacustrine CSM Unit	100
CR-SWB3	OU 2 Lower Lacustrine CSM Unit	100
CR-SWC1	OU 2 Lower Lacustrine CSM Unit	100
CR-SWC2	OU 2 Lower Lacustrine CSM Unit	100

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Sample ID	Area	Percent Fidelity
CR-SWC3-1	OU 2 Lower Lacustrine CSM Unit	100
CR-SWD1	OU 2 Lower Lacustrine CSM Unit	100
CR-SWD2	OU 2 Lower Lacustrine CSM Unit	100
CR-SWD3	OU 2 Lower Lacustrine CSM Unit	100
CR-SWE1	OU 2 Lower Lacustrine CSM Unit	100
CR-SWE2	OU 2 Lower Lacustrine CSM Unit	100
CR-SWE3	OU 2 Lower Lacustrine CSM Unit	100
CR-WBA3	OU 2 Transitional CSM Unit	100
CR-WBB3	OU 2 Transitional CSM Unit	100
CR-WBC2	OU 2 Transitional CSM Unit	100
CR-WBC3	OU 2 Transitional CSM Unit	100
CR-WBD1	OU 2 Transitional CSM Unit	100
CR-WBD2	OU 2 Transitional CSM Unit	100
CR-WBD3	OU 2 Transitional CSM Unit	100
CR-WCA1	OU 2 Middle Lacustrine CSM Unit	100
CR-WCB1	OU 2 Middle Lacustrine CSM Unit	100
CR-WCB2	OU 2 Middle Lacustrine CSM Unit	100
CR-WCB3-1	OU 2 Middle Lacustrine CSM Unit	100
CR-WCC1	OU 2 Middle Lacustrine CSM Unit	100
CR-WCC2	OU 2 Middle Lacustrine CSM Unit	100
CR-WCC3	OU 2 Middle Lacustrine CSM Unit	100
CR-WCD1	OU 2 Middle Lacustrine CSM Unit	100
CR-WCD2	OU 2 Middle Lacustrine CSM Unit	100
CR-WCD3	OU 2 Middle Lacustrine CSM Unit	100
CR-WCE1	OU 2 Middle Lacustrine CSM Unit	100
CR-WCE2	OU 2 Middle Lacustrine CSM Unit	100
CR-WCE3	OU 2 Middle Lacustrine CSM Unit	100
CR-WSA1	OU 2 Lower Lacustrine CSM Unit	100
CR-WSA2	OU 2 Lower Lacustrine CSM Unit	100
CR-WSA3	OU 2 Lower Lacustrine CSM Unit	100
CR-WSB1	OU 2 Lower Lacustrine CSM Unit	100
CR-WSB2	OU 2 Lower Lacustrine CSM Unit	100
CR-WSB3	OU 2 Lower Lacustrine CSM Unit	100
CR-WSC1	OU 2 Lower Lacustrine CSM Unit	100
CR-WSC2	OU 2 Lower Lacustrine CSM Unit	100
CR-WSC3	OU 2 Lower Lacustrine CSM Unit	100
CR-WSD1	OU 2 Lower Lacustrine CSM Unit	100
CR-WSD2	OU 2 Lower Lacustrine CSM Unit	100
CR-WSD3	OU 2 Lower Lacustrine CSM Unit	100
CR-WSE1	OU 2 Lower Lacustrine CSM Unit	100

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Sample ID	Area	Percent Fidelity
CR-WSE2	OU 2 Lower Lacustrine CSM Unit	100
CR-WSE3	OU 2 Lower Lacustrine CSM Unit	100
CS001	OU 2 Lower Lacustrine CSM Unit	100
CS003	OU 2 Lower Lacustrine CSM Unit	100
CS006	OU 2 Upper Lacustrine CSM Unit	100
CS009	OU 2 Upper Lacustrine CSM Unit	100
EV049-SE-1-092719	OU 1 South	100
F-1-COR-03-001-2mm	OU 1 South	100
F-1-COR-03-002-2mm	OU 1 South	100
F-1-COR-03-003-2mm	OU 1 South	100
GE definitive rep 1	LCR above Trail	100
GSC-COJ-01-001 Upper Top. Cr.	Canada Tributary	100
GSC-COJ-01-002 Upper Tr. Cr.	Canada Tributary	100
GSC-COJ-01-003 Lower Tr. Cr.	Canada Tributary	100
GSC-COJ-01-004 Upper Bear Cr.	Canada Tributary	100
GSC-COJ-01-005 Mid. Bear Cr.	Canada Tributary	100
GSC-COJ-01-006 Low. Bear Cr.	Canada Tributary	100
GSC-COJ-01-007 Low. Champ. Cr.	Canada Tributary	100
GSC-COJ-01-008 Mid. Champ. Cr.	Canada Tributary	100
GSC-COJ-01-009 Upper. Champ. Cr.	Canada Tributary	100
GSC-COJ-01-010 Upper Cas. Cr.	Canada Tributary	100
GSC-COJ-01-011 Low. Cas. Cr.	Canada Tributary	100
GSC-COJ-01-012 Upper Shep. Cr.	Canada Tributary	100
GSC-COJ-01-013 Lower Shep. Cr.	Canada Tributary	100
GSC-COJ-01-014 Upper Han. Cr.	Canada Tributary	100
GSC-COJ-01-015 Upper Murp. Cr.	Canada Tributary	100
GSC-COJ-01-016 Upper Blue. Cr.	Canada Tributary	100
GSC-COJ-01-017 Mid. Blue. Cr.	Canada Tributary	100
GSC-COJ-01-018 Lower Blue. Cr.	Canada Tributary	100
GSC-COJ-01-019 Lower China Cr.	Canada Tributary	100
GSC-COJ-01-020 Upper Sul. Cr.	Canada Tributary	100
GSC-COJ-01-021 Lower Sul. Cr.	Canada Tributary	100
GSC-COJ-01-023 Lower Mur. Cr.	Canada Tributary	100
GSC-COJ-01-024 Mid. Hanna Cr.	Canada Tributary	100
GSC-COJ-01-025 Lower Hanna Cr.	Canada Tributary	100
GSC-COJ-01-026 Mid. Top. Cr.	Canada Tributary	100

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Sample ID	Area	Percent Fidelity
GSC-COJ-01-027 Lower Top. Cr.	Canada Tributary	100
GSC-COJ-01-028 MD2 BLU CR	Canada Tributary	100
LALL DEF rep 1	LCR above Trail	100
MJ4EX8	OU 2 Transitional CSM Unit	100
MJ4F01	OU 2 Upper Lacustrine CSM Unit	100
MJ4F02	OU 2 Upper Lacustrine CSM Unit	100
MJ4F07	OU 2 Upper Lacustrine CSM Unit	100
MJ4F09	OU 2 Upper Lacustrine CSM Unit	100
MJ4F11	OU 2 Upper Lacustrine CSM Unit	100
MJ4F20	OU 2 Transitional CSM Unit	100
MJ4F21	OU 2 Transitional CSM Unit	100
MJ4F23	OU 2 Transitional CSM Unit	100
MJ4F24	OU 2 Transitional CSM Unit	100
MJ4F25	OU 2 Transitional CSM Unit	100
MJ4F26	OU 2 Transitional CSM Unit	100
MJ4F29	OU 2 Transitional CSM Unit	100
MJ4F31	OU 2 Upper Lacustrine CSM Unit	100
MJ4F40	OU 2 Upper Lacustrine CSM Unit	100
MJ4F42	OU 2 Upper Lacustrine CSM Unit	100
MJ4F56	OU 2 Upper Lacustrine CSM Unit	100
MJ4F57	OU 2 Upper Lacustrine CSM Unit	100
MJ4F62	OU 2 Upper Lacustrine CSM Unit	100
MJ4F65	OU 2 Middle Lacustrine CSM Unit	100
MJ4F69	OU 2 Upper Lacustrine CSM Unit	100
MJ4F71	OU 2 Upper Lacustrine CSM Unit	100
MJ4F81	OU 2 Upper Lacustrine CSM Unit	100
MJ4F82	OU 2 Upper Lacustrine CSM Unit	100
MJ4F90	OU 2 Middle Lacustrine CSM Unit	100
MJ4F99	OU 2 Upper Lacustrine CSM Unit	100
MJ4FA0	OU 2 Upper Lacustrine CSM Unit	100
MJ4FA2	OU 2 Upper Lacustrine CSM Unit	100
MJ4FB3	OU 2 Upper Lacustrine CSM Unit	100
MJ4FB9	OU 2 Transitional CSM Unit	100
MJ4FC3	OU 2 Transitional CSM Unit	100
MJ4FD3	OU 2 Middle Lacustrine CSM Unit	100
MJ4FD4	OU 2 Middle Lacustrine CSM Unit	100
MJ4FD5	OU 2 Middle Lacustrine CSM Unit	100
MJ4FD7	OU 2 Transitional CSM Unit	100
MJ4FE4	OU 2 Middle Lacustrine CSM Unit	100
MJ4FE6	OU 2 Middle Lacustrine CSM Unit	100

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Sample ID	Area	Percent Fidelity
MJ4FF1	OU 2 Upper Lacustrine CSM Unit	100
MJ4FF2	OU 2 Upper Lacustrine CSM Unit	100
MJ4FF3	OU 2 Upper Lacustrine CSM Unit	100
MJ4FF8	OU 2 Upper Lacustrine CSM Unit	100
MJ4FG9	OU 2 Upper Lacustrine CSM Unit	100
MJ4FH1	OU 2 Upper Lacustrine CSM Unit	100
MJ4FH9	OU 2 Transitional CSM Unit	100
MJ4FJ4	OU 2 Upper Lacustrine CSM Unit	100
MJ4FJ6	OU 2 Upper Lacustrine CSM Unit	100
MJ4FK1	OU 1 South	100
MJ4FL8	US Tributary	100
MJ4FM0	OU 2 Middle Lacustrine CSM Unit	100
MJ4FM2	OU 2 Middle Lacustrine CSM Unit	100
MJ4FM3	OU 2 Upper Lacustrine CSM Unit	100
MJ4FM9	US Tributary	100
MJ4FN6	US Tributary	100
MJ4FP1	OU 2 Middle Lacustrine CSM Unit	100
MJ4FP6	OU 2 Middle Lacustrine CSM Unit	100
MJ4FQ6	OU 2 Middle Lacustrine CSM Unit	100
MJ4FQ7	OU 2 Middle Lacustrine CSM Unit	100
MJ4FQ8	OU 2 Middle Lacustrine CSM Unit	100
MJ4FR0	OU 2 Lower Lacustrine CSM Unit	100
MJ4FR1	OU 2 Lower Lacustrine CSM Unit	100
MJ4FR2	OU 2 Lower Lacustrine CSM Unit	100
MJ4FR6	OU 2 Middle Lacustrine CSM Unit	100
MJ4FR8	OU 2 Middle Lacustrine CSM Unit	100
MJ4FR9	OU 2 Middle Lacustrine CSM Unit	100
MJ4FS0	OU 2 Middle Lacustrine CSM Unit	100
MJ4FS1	OU 2 Middle Lacustrine CSM Unit	100
MJ4FS2	OU 2 Middle Lacustrine CSM Unit	100
MJ4FS4	OU 2 Lower Lacustrine CSM Unit	100
MJ4FS5	OU 2 Lower Lacustrine CSM Unit	100
MJ4FS6	OU 2 Middle Lacustrine CSM Unit	100
MJ4FS8	OU 2 Lower Lacustrine CSM Unit	100
MJ4FT3	OU 2 Lower Lacustrine CSM Unit	100
MJ4FT7	OU 2 Lower Lacustrine CSM Unit	100
MJ4FT8	OU 2 Middle Lacustrine CSM Unit	100
MJ4FW0	OU 2 Lower Lacustrine CSM Unit	100
MJ4FW4	OU 2 Lower Lacustrine CSM Unit	100
MJ4FX0	OU 2 Upper Lacustrine CSM Unit	100

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Sample ID	Area	Percent Fidelity
MJ4FX2	OU 2 Middle Lacustrine CSM Unit	100
MJ4FX4	OU 2 Middle Lacustrine CSM Unit	100
MJ4FY4	OU 2 Middle Lacustrine CSM Unit	100
MJ4FY5	OU 2 Lower Lacustrine CSM Unit	100
MJ4FY6	OU 2 Lower Lacustrine CSM Unit	100
MJ4FY7	OU 2 Lower Lacustrine CSM Unit	100
MJ4FZ0	OU 2 Lower Lacustrine CSM Unit	100
MJ4FZ1	OU 2 Lower Lacustrine CSM Unit	100
MJ4FZ4	OU 2 Lower Lacustrine CSM Unit	100
MJ4G01	OU 2 Middle Lacustrine CSM Unit	100
MJ4G02	OU 2 Middle Lacustrine CSM Unit	100
MJ4G03	OU 2 Middle Lacustrine CSM Unit	100
MJ4G05	OU 2 Middle Lacustrine CSM Unit	100
MJ4G08	OU 2 Middle Lacustrine CSM Unit	100
MJ4G12	OU 2 Lower Lacustrine CSM Unit	100
MJ4G15	OU 2 Lower Lacustrine CSM Unit	100
MJ4G16	OU 2 Lower Lacustrine CSM Unit	100
MJ4G18	OU 2 Lower Lacustrine CSM Unit	100
MJ4G19	OU 2 Lower Lacustrine CSM Unit	100
MJ4G21	OU 2 Lower Lacustrine CSM Unit	100
MJ4G22	OU 2 Lower Lacustrine CSM Unit	100
MJ4G23	OU 2 Lower Lacustrine CSM Unit	100
MJ4G24	OU 2 Lower Lacustrine CSM Unit	100
MJ4G25	OU 2 Lower Lacustrine CSM Unit	100
MJ4G26	OU 2 Lower Lacustrine CSM Unit	100
MJ4G27	OU 2 Lower Lacustrine CSM Unit	100
MJ4G37	OU 2 Lower Lacustrine CSM Unit	100
REF001-SE-1-092819	LCR above Trail	100
REF002-SE-1-092819	LCR above Trail	100
REF003-SE-1-092719	LCR above Trail	100
REF004-SE-1-092719	LCR above Trail	100
REF005-SE-1-100319	LCR above Trail	100
REF006-SE-1-100219	LCR above Trail	100
REF007-SE-1-093019	LCR above Trail	100
REF008-SE-1-093019	LCR above Trail	100
REF009A-SE-1-100219	LCR above Trail	100
REF010-SE-1-100319	LCR above Trail	100
REF011-SE-1-100119	LCR above Trail	100
REF012-SE-1-100419	LCR above Trail	100
REF013-SE-1-092419	LCR above Trail	100

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Sample ID	Area	Percent Fidelity
REF014-SE-1-092619	LCR above Trail	100
REF016-SE-1-092519	LCR above Trail	100
REF017-SE-1-092519	LCR above Trail	100
REF018-SE-1-092519	LCR above Trail	100
SD-AAA	OU 2 Upper Lacustrine CSM Unit	100
SD-AAB	OU 2 Upper Lacustrine CSM Unit	100
SD-AAC	OU 2 Upper Lacustrine CSM Unit	100
SD-AAD-1	OU 2 Upper Lacustrine CSM Unit	100
SD-AAE	OU 2 Upper Lacustrine CSM Unit	100
SD-CRA	OU 2 Upper Lacustrine CSM Unit	100
SD-CRB-1	OU 2 Upper Lacustrine CSM Unit	100
SD-CRC	OU 2 Upper Lacustrine CSM Unit	100
SD-CRD	OU 2 Upper Lacustrine CSM Unit	100
SD-CRE	OU 2 Upper Lacustrine CSM Unit	100
SD-CSA	OU 2 Lower Lacustrine CSM Unit	100
SD-CSB	OU 2 Lower Lacustrine CSM Unit	100
SD-CSC	OU 2 Lower Lacustrine CSM Unit	100
SD-CSD	OU 2 Lower Lacustrine CSM Unit	100
SD-CSE	OU 2 Lower Lacustrine CSM Unit	100
SD-ENA	OU 2 Middle Lacustrine CSM Unit	100
SD-ENB	OU 2 Middle Lacustrine CSM Unit	100
SD-ENC	OU 2 Middle Lacustrine CSM Unit	100
SD-END	OU 2 Middle Lacustrine CSM Unit	100
SD-ENE	OU 2 Middle Lacustrine CSM Unit	100
SD-HCA	OU 2 Middle Lacustrine CSM Unit	100
SD-HCB-1	OU 2 Middle Lacustrine CSM Unit	100
SD-HCC	OU 2 Middle Lacustrine CSM Unit	100
SD-HCD	OU 2 Middle Lacustrine CSM Unit	100
SD-HCE	OU 2 Middle Lacustrine CSM Unit	100
SD-HTA	OU 2 Upper Lacustrine CSM Unit	100
SD-HTB	OU 2 Upper Lacustrine CSM Unit	100
SD-HTC	OU 2 Upper Lacustrine CSM Unit	100
SD-HTD	OU 2 Upper Lacustrine CSM Unit	100
SD-HTE	OU 2 Upper Lacustrine CSM Unit	100
SD-JBA	OU 2 Lower Lacustrine CSM Unit	100
SD-JBB	OU 2 Lower Lacustrine CSM Unit	100
SD-JBC	OU 2 Lower Lacustrine CSM Unit	100
SD-JBD	OU 2 Lower Lacustrine CSM Unit	100
SD-JBE-1	OU 2 Lower Lacustrine CSM Unit	100
SD-KFA	OU 2 Transitional CSM Unit	100

Table C-6
Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
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Sample ID	Area	Percent Fidelity
SD-KFB	OU 2 Transitional CSM Unit	100
SD-KFC	OU 2 Transitional CSM Unit	100
SD-KFD	OU 2 Transitional CSM Unit	100
SD-KFE	OU 2 Transitional CSM Unit	100
SD-KLA	OU 2 Transitional CSM Unit	100
SD-KLB	OU 2 Transitional CSM Unit	100
SD-KLC	OU 2 Transitional CSM Unit	100
SD-KLD	OU 2 Transitional CSM Unit	100
SD-KLE	OU 2 Transitional CSM Unit	100
SD-MGA	OU 2 Middle Lacustrine CSM Unit	100
SD-MGB	OU 2 Middle Lacustrine CSM Unit	100
SD-MGC	OU 2 Middle Lacustrine CSM Unit	100
SD-MGD	OU 2 Middle Lacustrine CSM Unit	100
SD-MGE	OU 2 Middle Lacustrine CSM Unit	100
SD-MPA	OU 2 Middle Lacustrine CSM Unit	100
SD-MPB	OU 2 Middle Lacustrine CSM Unit	100
SD-MPC	OU 2 Middle Lacustrine CSM Unit	100
SD-MPD-1	OU 2 Middle Lacustrine CSM Unit	100
SD-MPE	OU 2 Middle Lacustrine CSM Unit	100
SD-NAA	OU 2 Middle Lacustrine CSM Unit	100
SD-NAB	OU 2 Middle Lacustrine CSM Unit	100
SD-NZA	OU 2 Upper Lacustrine CSM Unit	100
SD-NZB	OU 2 Upper Lacustrine CSM Unit	100
SD-NZC	OU 2 Upper Lacustrine CSM Unit	100
SD-NZD	OU 2 Upper Lacustrine CSM Unit	100
SD-NZE-1	OU 2 Upper Lacustrine CSM Unit	100
SD-SBA	OU 2 Middle Lacustrine CSM Unit	100
SD-SBB	OU 2 Middle Lacustrine CSM Unit	100
SD-SBC-1	OU 2 Middle Lacustrine CSM Unit	100
SD-SBD	OU 2 Middle Lacustrine CSM Unit	100
SD-SBE	OU 2 Middle Lacustrine CSM Unit	100
SD-SCA	OU 2 Lower Lacustrine CSM Unit	100
SD-SCB	OU 2 Lower Lacustrine CSM Unit	100
SD-SCC	OU 2 Lower Lacustrine CSM Unit	100
SD-SCD	OU 2 Lower Lacustrine CSM Unit	100
SD-SCE	OU 2 Lower Lacustrine CSM Unit	100
SD-SWA	OU 2 Lower Lacustrine CSM Unit	100
SD-SWB	OU 2 Lower Lacustrine CSM Unit	100
SD-SWC	OU 2 Lower Lacustrine CSM Unit	100
SD-SWD	OU 2 Lower Lacustrine CSM Unit	100

Table C-6
Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
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Sample ID	Area	Percent Fidelity
SD-SWE	OU 2 Lower Lacustrine CSM Unit	100
SD-WCC	OU 2 Middle Lacustrine CSM Unit	100
SD-WSA-1	OU 2 Lower Lacustrine CSM Unit	100
SD-WSB	OU 2 Lower Lacustrine CSM Unit	100
SD-WSC	OU 2 Lower Lacustrine CSM Unit	100
SD-WSD	OU 2 Lower Lacustrine CSM Unit	100
SD-WSE	OU 2 Lower Lacustrine CSM Unit	100
SDU-03-COR-02-003-2mm	OU 1 South	100
SDU-03-COR-03-001-2mm	OU 1 South	100
SDU-03-COR-03-002-2mm	OU 1 South	100
SDU-03-COR-03-003-2mm	OU 1 South	100
SDU-04-COR-01-001-2mm	OU 1 South	100
SDU-04-COR-01-002-2mm	OU 1 South	100
SDU-04-COR-02-001-2mm	OU 1 South	100
SDU-04-COR-02-002-2mm	OU 1 South	100
SDU-04-COR-02-003-2mm	OU 1 South	100
SDU-06-COR-01-001-2mm	OU 1 South	100
SDU-06-COR-01-002-2mm	OU 1 South	100
SDU-06-COR-01-003-2mm	OU 1 South	100
SDU-06-COR-02-001-2mm	OU 1 South	100
SDU-06-COR-03-001-2mm	OU 1 South	100
SDU-06-ICS-A-2mm	OU 1 South	100
SDU-06-ICS-B-2mm	OU 1 South	100
SE-4-C2	OU 2 Transitional CSM Unit	100
SE-8-C2	OU 2 Lower Lacustrine CSM Unit	100
SE-G-1	LCR above Trail	100
SE-G-2	LCR above Trail	100
SE-G-3	LCR above Trail	100
SE-G-4	LCR above Trail	100
SE-LAL-1	LCR above Trail	100
SE-LAL-2	LCR above Trail	100
SE-LAL-3	LCR above Trail	100
SE-LAL-4	LCR above Trail	100
SE-LAL-5	LCR above Trail	100
SE-LAL-6	LCR above Trail	100
SE-REF-10b	OU 2 Lower Lacustrine CSM Unit	100
SE-REF-5	OU 2 Upper Lacustrine CSM Unit	100
SE-REF-9	OU 2 Lower Lacustrine CSM Unit	100
SE-TRIB-1	US Tributary	100
SE-TRIB-2	US Tributary	100

Table C-6
Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
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Sample ID	Area	Percent Fidelity
SE-TRIB-3	US Tributary	100
SE-TRIB-4	US Tributary	100
SE-TRIB-5	US Tributary	100
TP-19 (0.5-1.0)	OU 1 North	100
TP-6 (2.0-2.5)	OU 1 North	100
TS001	US Tributary	100
TS002	US Tributary	100
TS003	US Tributary	100
TS004	US Tributary	100
TS005	US Tributary	100
TS006	US Tributary	100
TS007	US Tributary	100
TS009	US Tributary	100
TS012	US Tributary	100
TS015	US Tributary	100
TS016	US Tributary	100
TS017	US Tributary	100
TS018	US Tributary	100
TS019	US Tributary	100
TS020	US Tributary	100
TS021	US Tributary	100
TS022	US Tributary	100
TS023	US Tributary	100
TS024	US Tributary	100
TS025	US Tributary	100
TS026	US Tributary	100
TS027	US Tributary	100
TS028	US Tributary	100
TS030	US Tributary	100
TS032	US Tributary	100
TS034	US Tributary	100
TS036	US Tributary	100
TS038	US Tributary	100
TS039	US Tributary	100
TS040	US Tributary	100
TS041	US Tributary	100
TS046	US Tributary	100
TS047	US Tributary	100
TS048	US Tributary	100
TS049	US Tributary	100

Table C-6
Background Cluster Sample Fidelity Assessment Based on 1000 Bootstrap Replications
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Sample ID	Area	Percent Fidelity
TS050	US Tributary	100
TS052	US Tributary	100
TS053	US Tributary	100
TS054	US Tributary	100
TS055	US Tributary	100
TS058	US Tributary	100
TS059	US Tributary	100
TS060	US Tributary	100
TS062	US Tributary	100
TS063	US Tributary	100
TS068	US Tributary	100
TS069	US Tributary	100
TS071	US Tributary	100
TS073	US Tributary	100
TS075	US Tributary	100
TS084	US Tributary	100
TS090	US Tributary	100
TS096	US Tributary	100
TS101	US Tributary	100
TS105	US Tributary	100
TS106	US Tributary	100

Notes:
Exact percent fidelity will change slightly during reruns due to random sampling.
CSM = conceptual site model
LCR = Lower Columbia River

Table C-7
Final Sediment Background Threshold Values
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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COPC	Sediment BTV (mg/kg-dw)
Aluminum	14,400
Antimony	1.20
Arsenic	11.2
Barium	158
Beryllium	0.980
Cadmium	0.615
Calcium	19400
Chromium	32.0
Cobalt	11.3
Copper	28.8
Iron	25900
Lead	24.9
Magnesium	8690
Manganese	598
Mercury	0.100
Molybdenum	NA [a]
Nickel	29.9
Potassium	2920
Selenium	3.50
Silver	1.10
Sodium	344
Thallium	0.241
Vanadium	39.0
Zinc	118

Notes:

[a] Statistically reliable background threshold value (BTV) could not be calculated due to small sample sizes.

COPC = chemical of potential concern

mg/kg-dw = milligram(s) per kilogram-dry weight

NA = not applicable

Table C-8
Comparing Sediment Background Threshold Values
Excluding Samples from OU 1
Upper Columbia River
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COPC	Sediment BTV (mg/kg-dw)	Sediment BTV excluding OU 1 samples (mg/kg-dw)
Aluminum	14,400	14,300
Antimony	1.20	1.20
Arsenic	11.2	11.2
Barium	158	165
Beryllium	0.980	0.990
Cadmium	0.615	0.620
Calcium	19400	19400
Chromium	32.0	31.8
Cobalt	11.3	12.0
Copper	28.8	28.4
Iron	25,900	25,900
Lead	24.9	24.2
Magnesium	8690	8660
Manganese	598	601
Mercury	0.100	0.110
Molybdenum	NA [a]	NA [a]
Nickel	29.9	29.9
Potassium	2920	2980
Selenium	3.50	3.50
Silver	1.10	1.10
Sodium	344	345
Thallium	0.241	0.243
Vanadium	39.0	41.4
Zinc	118	118

Notes:

[a] Statistically reliable background threshold value (BTV) could not be calculated due to small sample sizes.

COPC = chemical of potential concern

mg/kg-dw = milligram(s) per kilogram-dry weight

NA = not applicable

Table C-9
Comparing Sediment Background Threshold Values to Regional Background Data Sets and Reference Locations North of Trail, British Columbia
Upper Columbia River
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	Cluster 3 Samples		Other Studies Presenting Background or Reference Sediment Metals Concentrations													
	Sediment BTV	North of Trail BTV	2010 Vlassopoulos Expert Report for CCT (Vlassopoulos 2010)		Regional Background Concentration Technical Memorandum for CCT (MacDonald 2014)		2004 USGS Toxicity Evaluation (Besser et al. 2007)	2002–2003 USGS Sediment Core Sampling [a] (USGS 2005)	2001 USGS Beach and Bed Sediments of Lake Roosevelt [b] (USGS 2003)	2001 Ecology Reassessment of Toxicity of Lake Roosevelt Sediments (Ecology 2001)	Assessment of Columbia River Receiving Waters (Teck Cominco Ltd. 2001)		1992 USGS Sediment Quality Assessment (USGS 2001)		1986 Ecology Assessment of Metals (Ecology 1989)
											1995 Sampling Event	1999 Sampling Event			
Number of Background or Reference Sample Locations	487	39	3		590 (compiled from 7 studies)		1	Not specified	5	1	1	1	2		1
Location(s)	LCR above Trail OU 1 North OU 1 South OU 2 Transitional OU 2 Upper Lacustrine OU 2 Middle Lacustrine OU 2 Lower Lacustrine US Tributary Canada Tributary	LCR above Trail	OU 1 North		US Tributary		US Tributary	Not specified	OU 2 Upper Lacustrine OU 2 Middle Lacustrine LCR above Trail	LCR above Trail	LCR above Trail	LCR above Trail	LCR above Trail		LCR above Trail
Sample Preparation Method	TRM	TRM	TRM		Varies by study		TRM	Not specified	Sieve to < 63 um, Total Digestion	TRM	TRM	TRM	Total Digestion	TRM	TRM
Number of Background or Reference Samples	737	39	6		36 to 588 (Varies by metal)		1	Not specified	5	1	3 replicates	3 replicates	2	2	2 (Primary and Replicate)
Statistic Describing Background or Reference Concentration	**BTV (95/95 UTL)**	**BTV (95/95 UTL)**	**Mean**	**Maximum**	**Estimated Mean, 95% UCL of mean using log10 transformed distribution**	**Upper Limit of BG, 90th Percentile using log10 transformed distribution**	**Not applicable (n = 1)**	**Min - Max**	**Min - Max**	**Not applicable (n = 1)**	**Mean**	**Mean**	**Min - Max**	**Min - Max**	**Min - Max**
Background or Reference Sediment Concentration (mg/kg)															
Aluminum	14,400	12,100	NR	NR	NR	NR	NR	NR	NR	NR	2,820	3,290	NR	NR	8,420-8,600
Antimony	1.2	0.299	0.1	0.2	NR	NR	NR	NR	0.4-1.4	2	0.15	0.187	NR	NR	NR
Arsenic	11.2	9.5	2.1	2.5	2.63	8	8.4	3.2-10	3.2-10	NR	1.14	1	1.5-2	1.1-1.5	2.5-3
Barium	158	142	49	58	NR	NR	NR	NR	790-1100	NR	29.4	24.6	NR	NR	NR
Beryllium	0.98	0.769	0.38	0.7	NR	NR	NR	NR	1.7-2.5	NR	<0.2	0.14	NR	NR	NR
Cadmium	0.615	1.1	0.25	0.3	0.454	0.891	0.48	<0.1-0.4	0.1-0.4	0.46	0.17	0.147	0.5	<0.2-<0.4	0.6
Chromium	32	34.5	9.3	12.7	43	110	NR	NR	36-130	NR	8.73	16.6	NR	NR	NR
Cobalt	11.3	13.2	3	3.6	NR	NR	NR	NR	8.2-14	NR	2.43	2.51	NR	NR	NR
Copper	28.8	23.6	13.3	19.1	11.8	25	22	9-25	9-25	4	10.1	13.2	7	7.6-9.4	13-17
Iron	25,900	23,000	9,790	12,300	NR	NR	NR	NR	NR	NR	5,160	14,900	NR	NR	10,400-10,700
Lead	24.9	59.1	10.5	15.3	12	25	16	14-47	14-47	12	8.48	8.29	28-32	15-18	19
Manganese	598	719	364	546	NR	NR	NR	NR	540-1000	NR	129	146	NR	NR	190
Mercury	0.1	0.0232	<0.05	<0.05	0.0177	0.0182	0.03	0.01-0.07	0.01-0.07	0.0004	<0.05	0.02	<0.05	0.008-0.01	0.01-0.02
Nickel	29.9	41.1	8.1	10.7	12	30	NR	NR	16-65	NR	7.05	7.3	NR	NR	NR
Selenium	3.5	0.493	NR	NR	0.735	2	NR	NR	0.06-0.3	NR	<1	<0.05	NR	NR	NR
Silver	1.1	0.347	0.05	0.05	0.339	0.6	NR	NR	0.5	NR	0.12	0.076	NR	NR	NR
Thallium	0.241	0.271	0.14	0.25	NR	NR	NR	NR	NR	NR	<0.05	0.04	NR	NR	NR
Vanadium	39	34.4	NR	NR	NR	NR	NR	NR	63-96	NR	13.3	28.7	NR	NR	NR
Zinc	118	90.8	83	151	36.6	67	120	50-150	53-130	27	58.1	40.3	49-60	40-46	45-51

Notes:
Full references presented in appendix main text.
[a] Concentrations of trace elements in core sediments collected for this study were compared to reported concentration of trace elements in reference sediments that were collected from bank material adjacent to the reservoir (USGS 2003) and river sediment collected upstream of the smelter (USGS 2001).
[b] Glacial sediments above the high-water elevation along the upper banks of Lake Roosevelt were collected at three locations (River Mile [RM] 690, RM 670, and RM 635). These were collected as subsurface composites, where an exposed bank above the high water line was selected, and at least the top 15 centimeters of material was removed before the sample was taken. Beach- and bank-sediment samples were also collected from two locations on Lower Arrow Lake in British Columbia.
BTV = background
CCT = Confederated
LCR = Lower Columbia
mg/kg-dw = milligram(s) per kilogram-dry weight
NR = not reported
TRM = total recoverable metals
UTL = upper tolerance limit

Table C-10
Soil Background Threshold Values Used in the Aquatic BERA
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COPC/COI	Partial Digestion BTV (mg/kg) [a,b]	Mercury BTV (mg/kg) [a]	BTV Used (mg/kg) [c]
Aluminum	40,500	NA	40,500
Antimony	0.41	NA	0.41
Arsenic	98.4 / 80.6 / 23.31 [a,b]	NA	23.3
Barium	395	NA	395
Cadmium	0.74	NA	0.74
Chromium	27.1 / 23.8 [a]	NA	23.8
Cobalt	20.4	NA	20.4
Copper	41.5	NA	41.5
Iron	31,200	NA	31,200
Lead	27.2	NA	27.2
Manganese	1,240	NA	1,240
Mercury	NA	0.14 / 0.12 [a]	0.12
Molybdenum	3.5 / 1.4 [a]	NA	1.4
Nickel	35	NA	35
Selenium	0.098 / 0.10 [a]	NA	0.098
Silver	0.078	NA	0.078
Thallium	0.56	NA	0.56
Vanadium	47.5	NA	47.5
Zinc	111	NA	111

Notes:

For each metal, the selected background threshold value (BTV) represents the most conservative value (i.e., lowest BTV), within that analytical preparation method group.

[a] BTVs calculated with and without outliers are indicated with a forward slash (for example 13 / 12), respectively.

[b] Samples identified for exclusion by EPA based on multivariate analyses and location (Attachment C1 of Appendix C).

[c] BTVs were developed by TAI and approved by EPA (Attachment C1 of Appendix C). Values for metals other than mercury are the partial digestion BTVs.

COI = chemical of interest

COPC = chemical of potential concern

mg/kg = milligram(s) per kilogram(s)

NA = not applicable

Table C-11
Field Porewater Equipment Blank Results Associated with Phase 3 Reference Area Samples
Upper Columbia River
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Field Equipment Blank Sample ID	Field Equipment Blank Sample Date	Analyte	Field Equipment Blank Result (µg/L)	Number of Associated Field Porewater Samples Qualified U*	Range of Field Porewater Results with a U* Qualifier (µg/L)
REF018-PW-4-092619	9/26/2019	Aluminum	9.7	13	4–27.9
REF018-PW-4-092619	9/26/2019	Antimony	0.02 U	12 [a]	0.076–0.249
REF018-PW-4-092619	9/26/2019	Cadmium	0.008 U	NA	NA
REF018-PW-4-092619	9/26/2019	Copper	0.27	17	0.08–1.56
REF018-PW-4-092619	9/26/2019	Iron	22	11	9–100
REF018-PW-4-092619	9/26/2019	Lead	0.112	16	0.039–0.368
REF018-PW-4-092619	9/26/2019	Manganese	0.44	4	0.79–1.93
REF018-PW-4-092619	9/26/2019	Zinc	0.8 J	13	1.1–2.5

Notes:
[a] Field porewater results for antimony were qualified as nondetected and flagged U* based on filter blank contamination.
µg/L = micrograms per liter
J = Estimated value
NA = not applicable
U = Measured value was not detected above the detection limit (nondetected value)

Table C-12
Calculated Upper Tolerance Limits and Background Threshold Values for Field-Collected Porewater
Upper Columbia River
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Parameter Type	Parameter	Phase 2 and Phase 3 Data as Reported				Phase 3 Data as Reported				Phase 3 Data Blank-Subtracted				BTV Range [a]	
		All Data (Approach A)		Outliers Removed (Approach B)		All Data (Approach C)		Outliers Removed (Approach D)		All Data (Approach E)		Outliers Removed (Approach F)			
		UTL	Maximum	UTL	Maximum	UTL	Maximum	UTL	Maximum	UTL	Maximum	UTL	Maximum	Minimum	Maximum
Dissolved Concentration	Aluminum (µg/L)	**205**	265	**152**	182	**120**	143	85.2	**76.6**	**109**	133	73.7	**66.9**	66.9	205
Dissolved Concentration	Antimony (µg/L)	**0.724**	0.736	**0.724**	0.736	0.671	**0.663**	0.671	**0.663**	0.671	**0.663**	**0.571**	0.593	0.571	0.724
Dissolved Concentration	Cadmium (µg/L)	0.244	**0.244**	0.145	**0.145**	0.244	**0.244**	**0.106**	0.145	0.244	**0.244**	**0.106**	0.145	0.106	0.244
Dissolved Concentration	Copper (µg/L)	**2.56**	3.86	**1.51**	1.56	NC	**3.86**	NC	**1.56**	NC	**3.59**	NC	**1.29**	1.29	3.86
Dissolved Concentration	Iron (µg/L)	11100	**11100**	5500	**5500**	**4040**	5500	**2220**	3250	**4020**	5480	**2200**	3230	2200	11100
Dissolved Concentration	Lead (µg/L)	**4.49**	5.72	**3.56**	5.59	1.35	**1.35**	NC	**0.989**	1.24	**1.24**	NC	**0.877**	0.877	4.49
Dissolved Concentration	Manganese (µg/L)	867	**859**	867	**859**	836	**716**	836	**716**	836	**716**	836	**716**	716	859
Dissolved Concentration	Zinc (µg/L)	80.4	**80.4**	**6.54**	74.6	80.4	**80.4**	6.76	**6.8**	79.6	**79.6**	**5.96**	6	5.96	80.4
AWQC TU (Aquatic Life)	Aluminum TU	0.829	**0.430**	0.665	**0.270**	0.865	**0.430**	0.865	**0.430**	**0.4**	0.400	**0.220**	0.220	0.220	0.430
AWQC TU (Aquatic Life)	Antimony TU	0.0230	**0.0190**	0.0230	**0.0190**	0.0221	**0.0170**	**0.0141**	0.0150	0.0221	**0.0170**	**0.0141**	0.0150	0.0141	0.0190
AWQC TU (Aquatic Life)	Cadmium TU	0.546	**0.440**	0.390	**0.260**	**0.420**	0.440	0.231	**0.210**	**0.420**	0.440	0.231	**0.210**	0.210	0.440
AWQC TU (Aquatic Life)	Copper TU	11.3	**7.40**	**3.02**	4.30	15.2	**7.40**	**3.41**	4.30	**5.94**	7.00	3.37	**2.80**	2.80	7.40
AWQC TU (Aquatic Life)	Iron TU	16.6	**11.0**	8.14	**5.50**	11.0	**5.50**	4.84	**3.20**	**4.69**	5.50	**2.40**	3.20	2.40	11.0
AWQC TU (Aquatic Life)	Lead TU	3.95	**2.70**	2.58	**1.70**	1.26	**0.960**	0.781	**0.710**	**0.890**	0.890	**0.630**	0.630	0.630	2.70
AWQC TU (Aquatic Life)	Manganese TU	1.00	**0.540**	1.00	**0.540**	**0.470**	0.470	0.470	0.470	1.09	**0.470**	1.09	**0.470**	0.470	0.540
AWQC TU (Aquatic Life)	Zinc TU	1.46	**1.10**	**0.913**	1.00	**0.450**	1.10	0.125	**0.0720**	**0.521**	1.10	0.145	**0.0610**	0.0610	1.10
Plant-specific	Cadmium TU	0.00527	**0.00440**	0.00377	**0.00260**	**0.00378**	0.00440	**0.00202**	0.00260	**0.00378**	0.00440	**0.00202**	0.00260	0.00202	0.00440
Plant-specific	Lead TU	0.109	**0.0910**	**0.0675**	0.0890	0.0272	**0.0210**	**0.0123**	0.0160	**0.0200**	0.0200	**0.0140**	0.0140	0.0123	0.0910
Plant-specific	Manganese TU	0.103	**0.0540**	0.103	**0.0540**	**0.0450**	0.0450	0.0450	0.0450	0.110	**0.0450**	0.110	**0.0450**	0.0450	0.0540
Plant-specific	Zinc TU	**0.500**	0.500	0.500	0.500	**0.500**	0.500	0.0420	0.0420	**0.500**	0.500	0.0644	**0.0380**	0.0380	0.500
Benthic invertebrate-specific	Antimony TU	0.0108	**0.00890**	0.0108	**0.00890**	0.0103	**0.00800**	**0.00666**	0.00710	0.0103	**0.00800**	**0.00666**	0.00710	0.00666	0.00890
Benthic invertebrate-specific	Iron TU	**9.20**	9.20	6.50	6.50	**6.50**	6.50	4.20	4.20	**6.27**	6.40	**3.61**	4.20	3.61	9.20
Fish-specific	Antimony TU	0.000322	**0.000260**	0.000322	**0.000260**	0.000309	**0.000240**	**0.000199**	0.000210	0.000309	**0.000240**	**0.000199**	0.000210	0.000199	0.000260
Fish-specific	Iron TU	**6.60**	6.60	6.60	6.60	**6.60**	6.60	5.40	5.40	**6.60**	6.60	**5.40**	5.40	5.40	6.60
White sturgeon-specific	Cadmium TU	0.0749	**0.0600**	0.0537	**0.0360**	**0.0578**	0.0600	0.0320	**0.0280**	**0.0578**	0.0600	0.0320	**0.0280**	0.0280	0.0600
White sturgeon-specific	Copper TU	22.6	**14.0**	15.4	**9.10**	29.7	**13.7**	19.9	**9.07**	70.3	**12.8**	6.49	**5.80**	5.80	14.0
White sturgeon-specific	Lead TU	0.425	**0.290**	0.276	**0.160**	0.138	**0.100**	0.0862	**0.0760**	**0.0950**	0.0950	**0.0670**	0.0670	0.0670	0.290
White sturgeon-specific	Zinc TU	1.12	**0.810**	**0.711**	0.780	**0.337**	0.810	0.0955	**0.0540**	**0.391**	0.800	0.112	**0.0460**	0.0460	0.810

Notes:
Bolded values indicate the chosen statistic to represent the background threshold value (BTV) for each version of the data set. The lower of the two values between the upper tolerance limit (UTL) and the maximum is the statistic chosen.
Approach letters (e.g., Approach A, Approach B) correspond with the descriptions of each approach method as presented in Section 2.2 of Appendix C.
All UTLs calculated using ProUCL, Version 5.2.
[a] The range of BTV values shown represents the range of the chosen statistic (bolded values) for each approach scenario.
µg/L = micrograms per liter
AWQC = ambient water quality criteria
NC = not calculated
TU = toxic unit (calculated as the sample concentration / benchmark; depending on the analyte, the benchmark may be adjusted for toxicity using sample-specific measurements such as pH and organic carbon content)

FIGURES

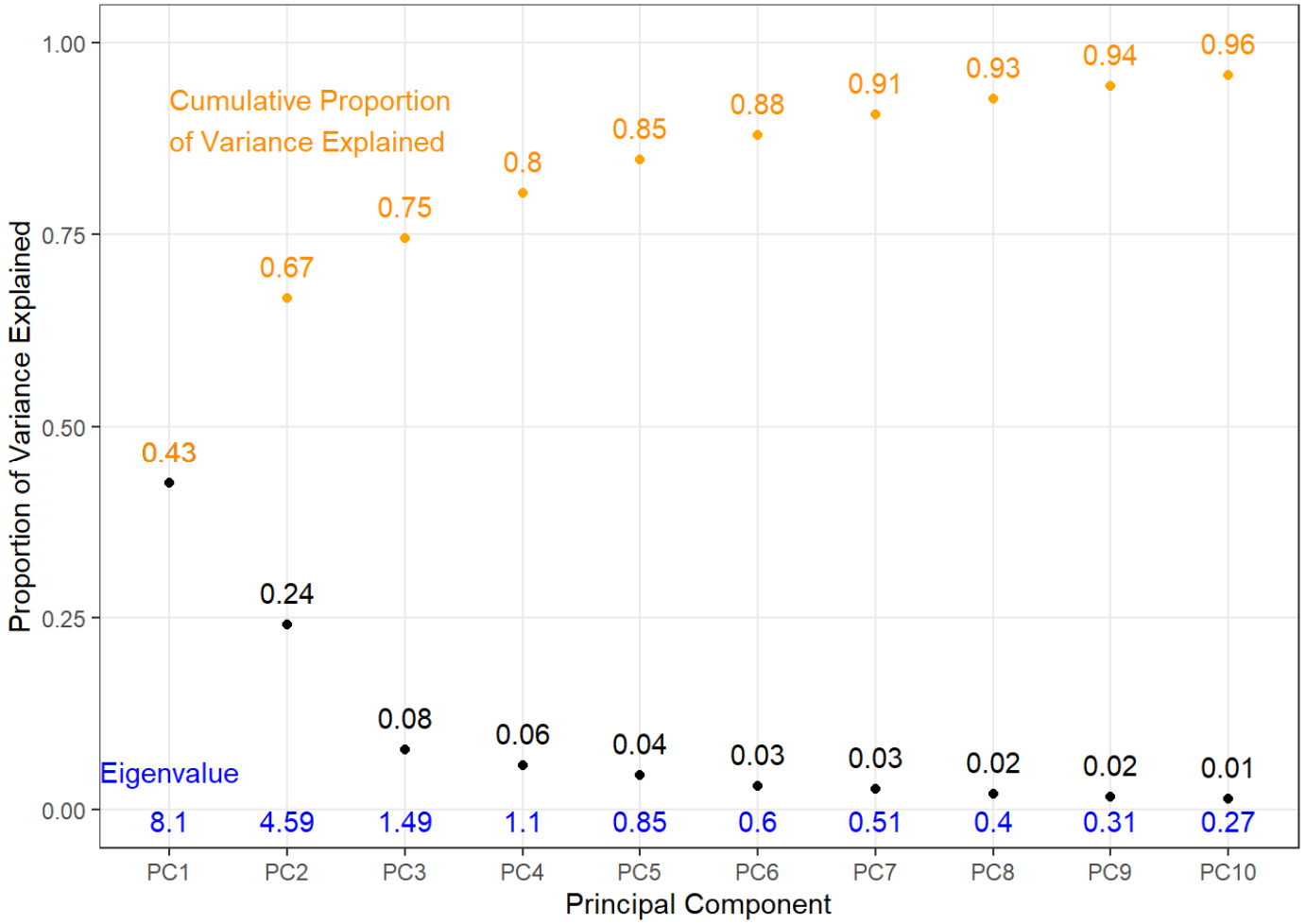


Figure C-1. PCA Scree Plot

ERM

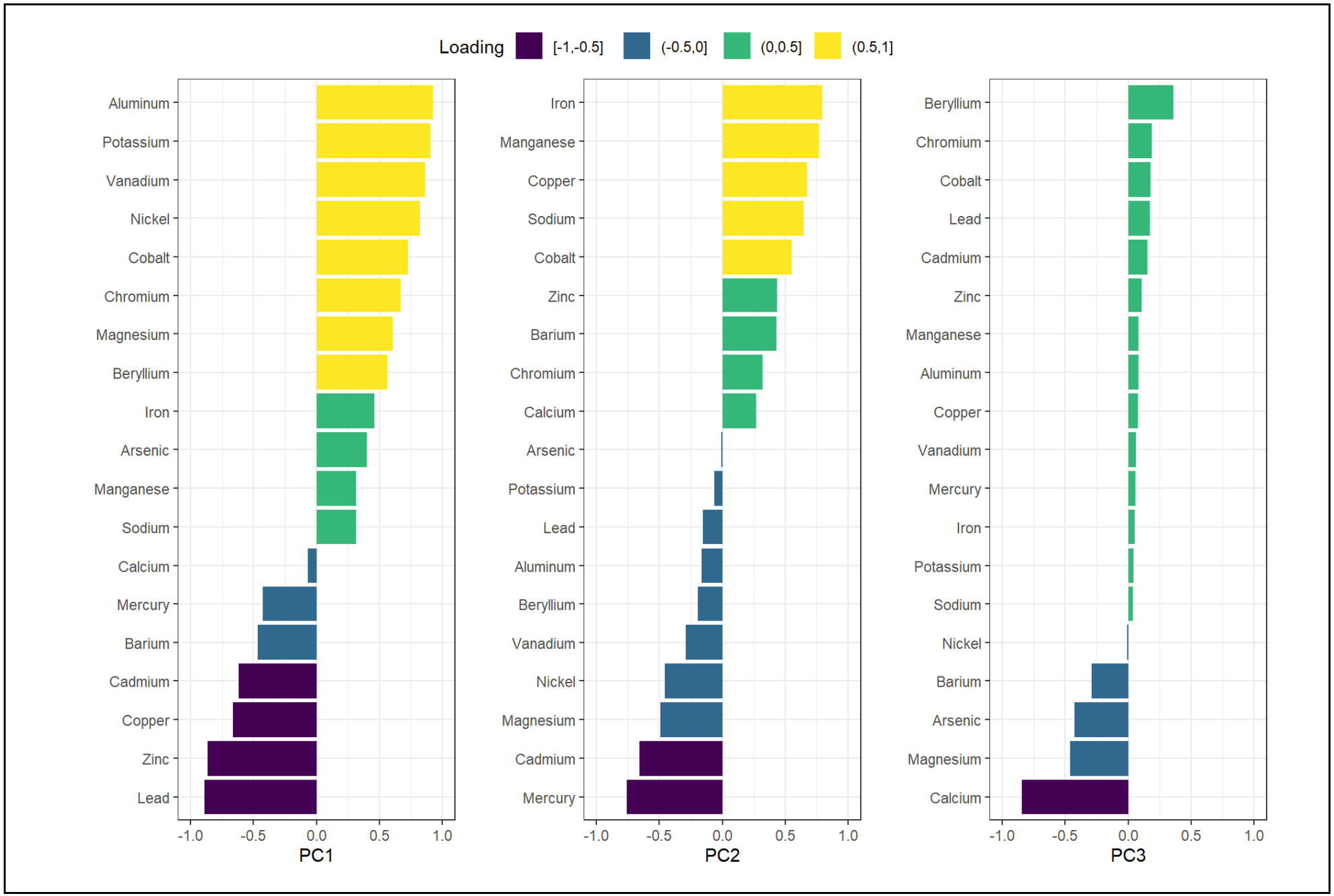
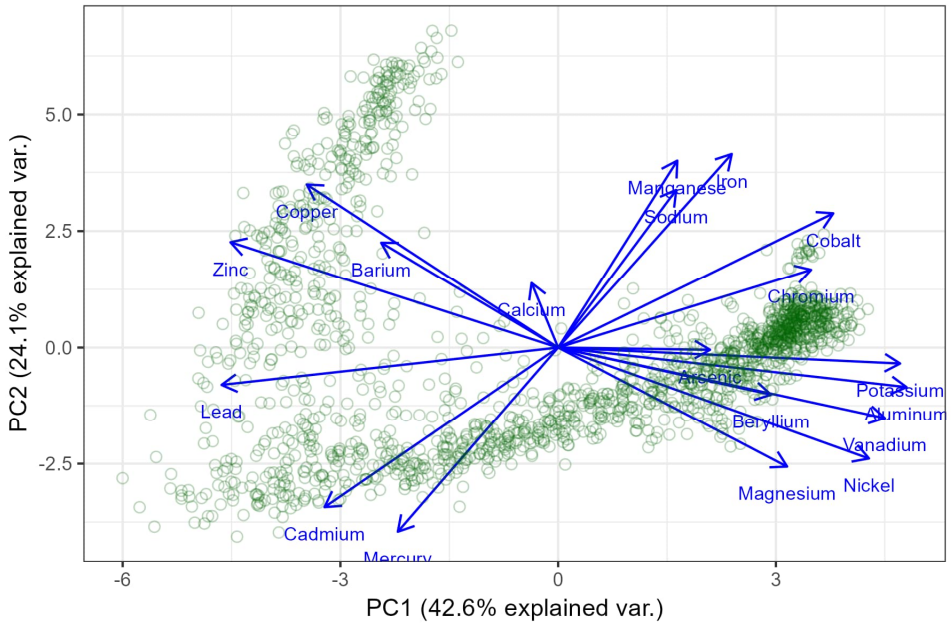
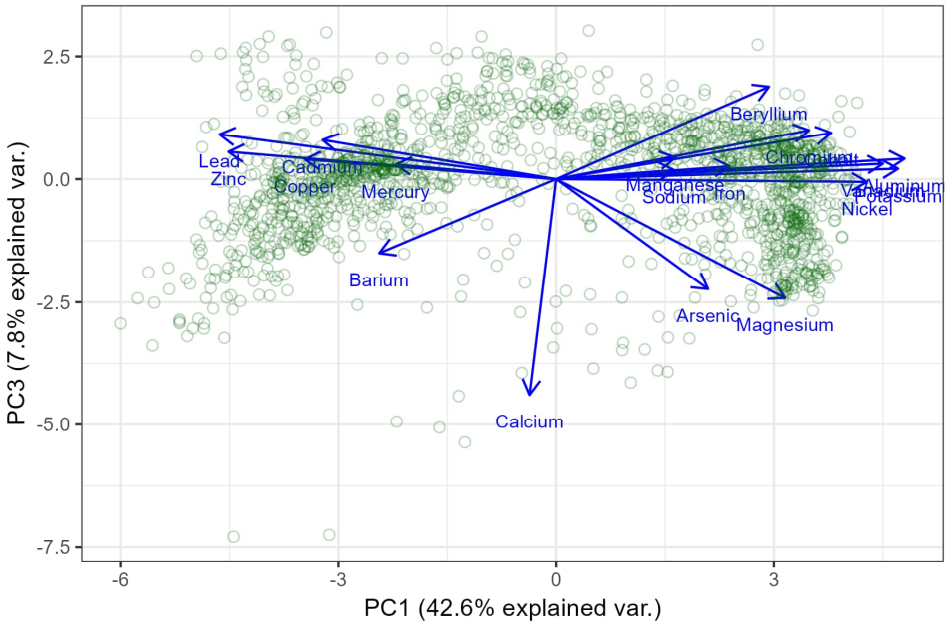


Figure C-2. PCA Loadings

ERM





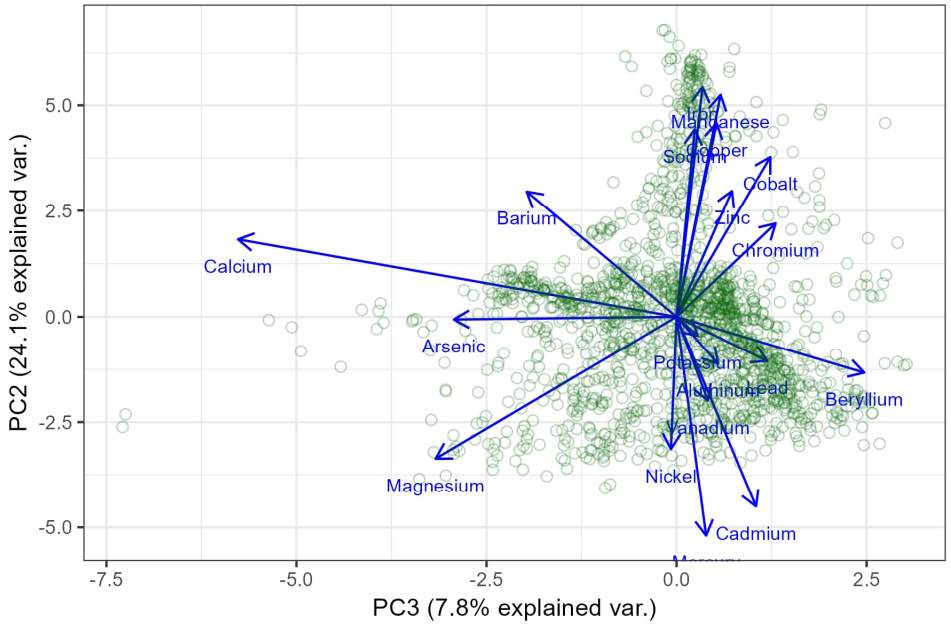


Figure C-3. PCA Biplots

ERM

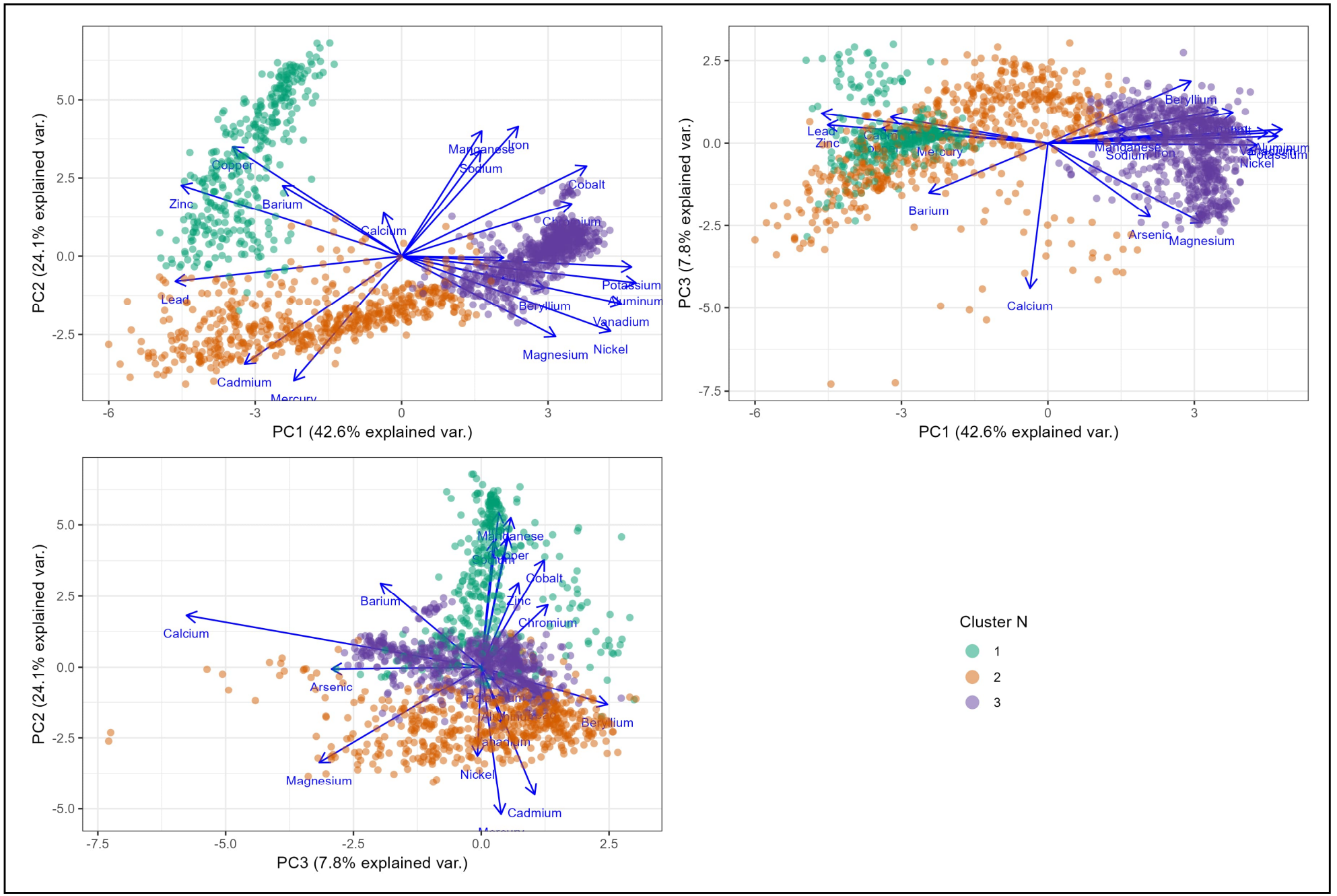


Figure C-4. PCA Biplots for Clusters

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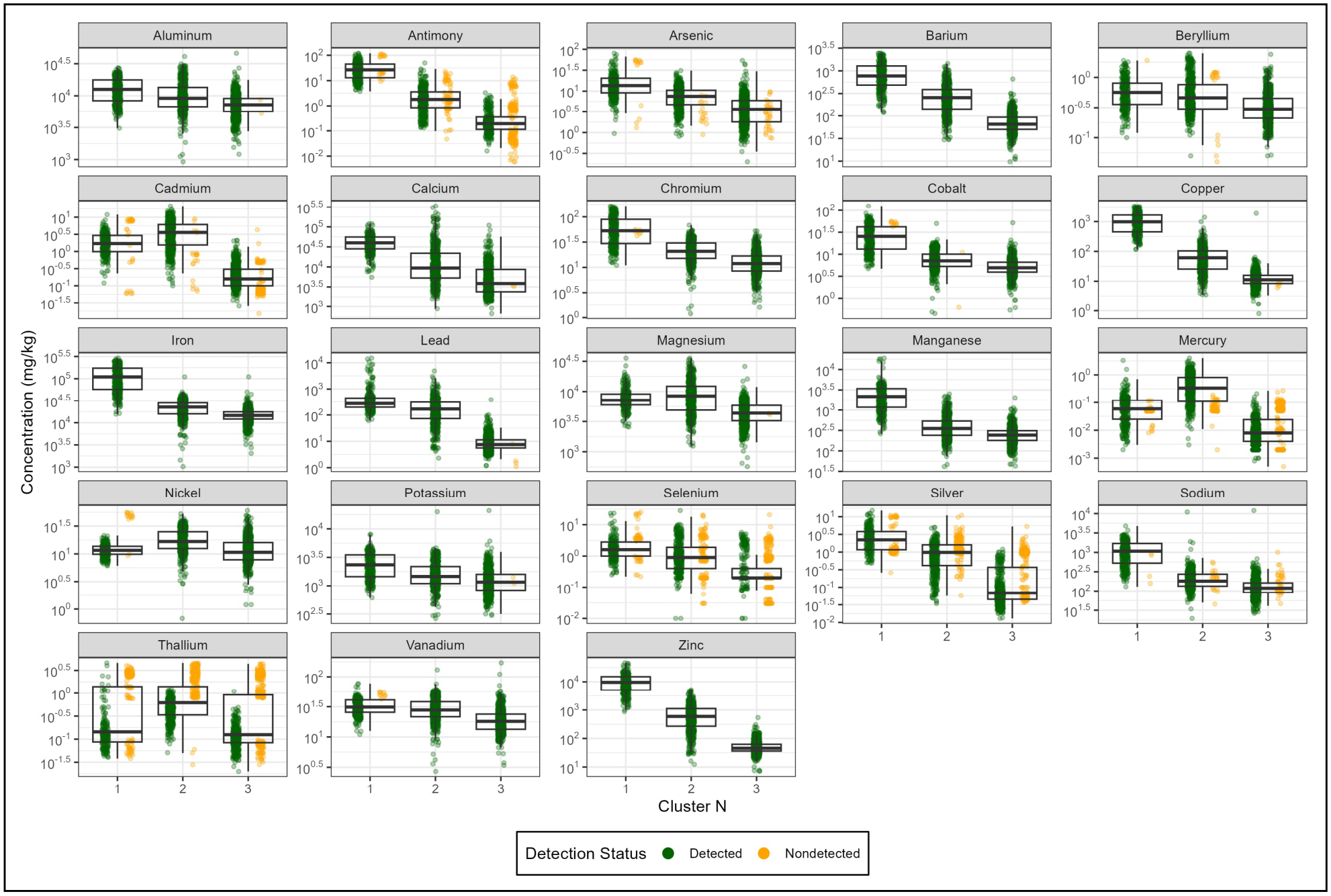


Figure C-5. Boxplots of Metal Concentrations by Cluster

ERM

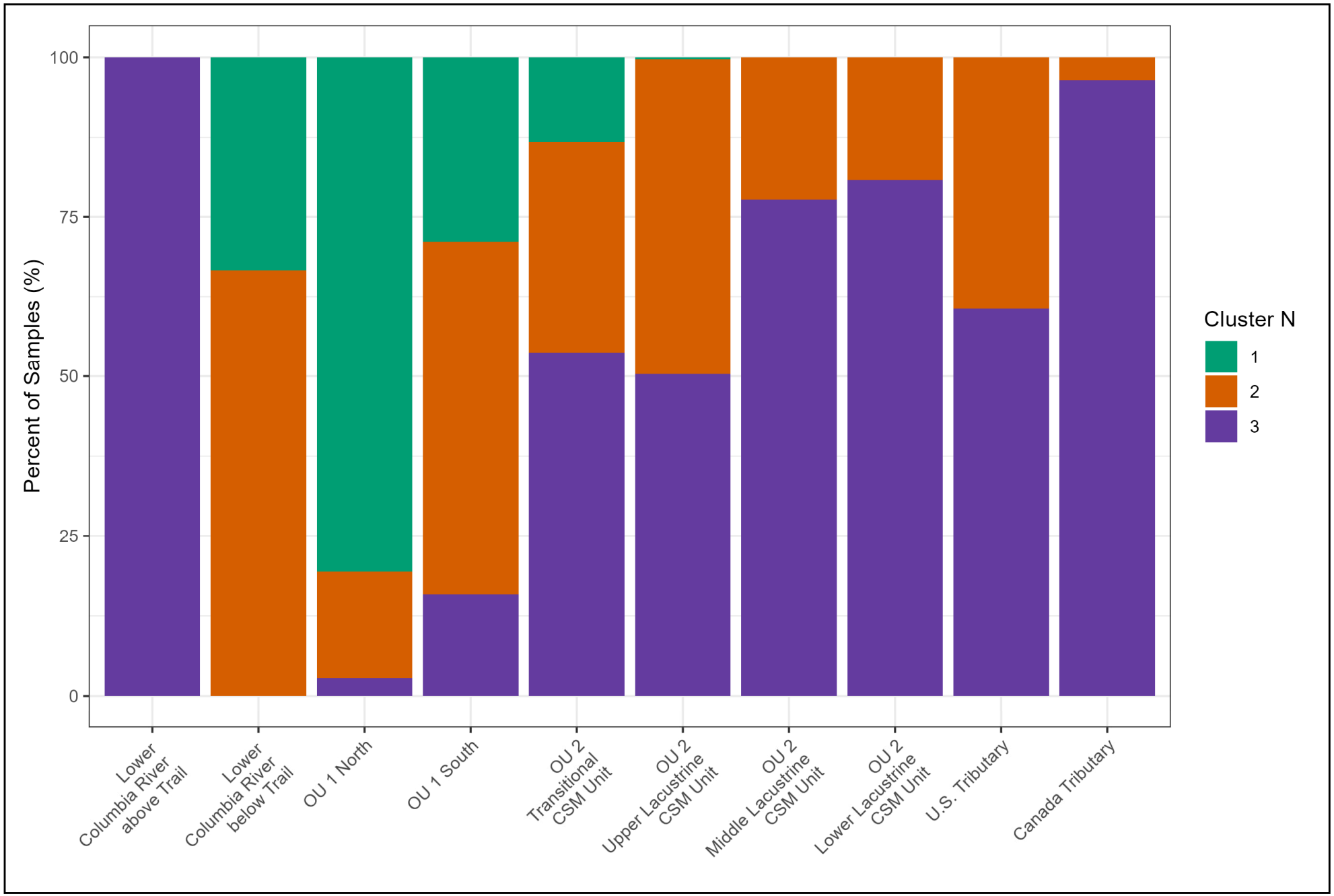


Figure C-6. Cluster Membership by Location

ERM

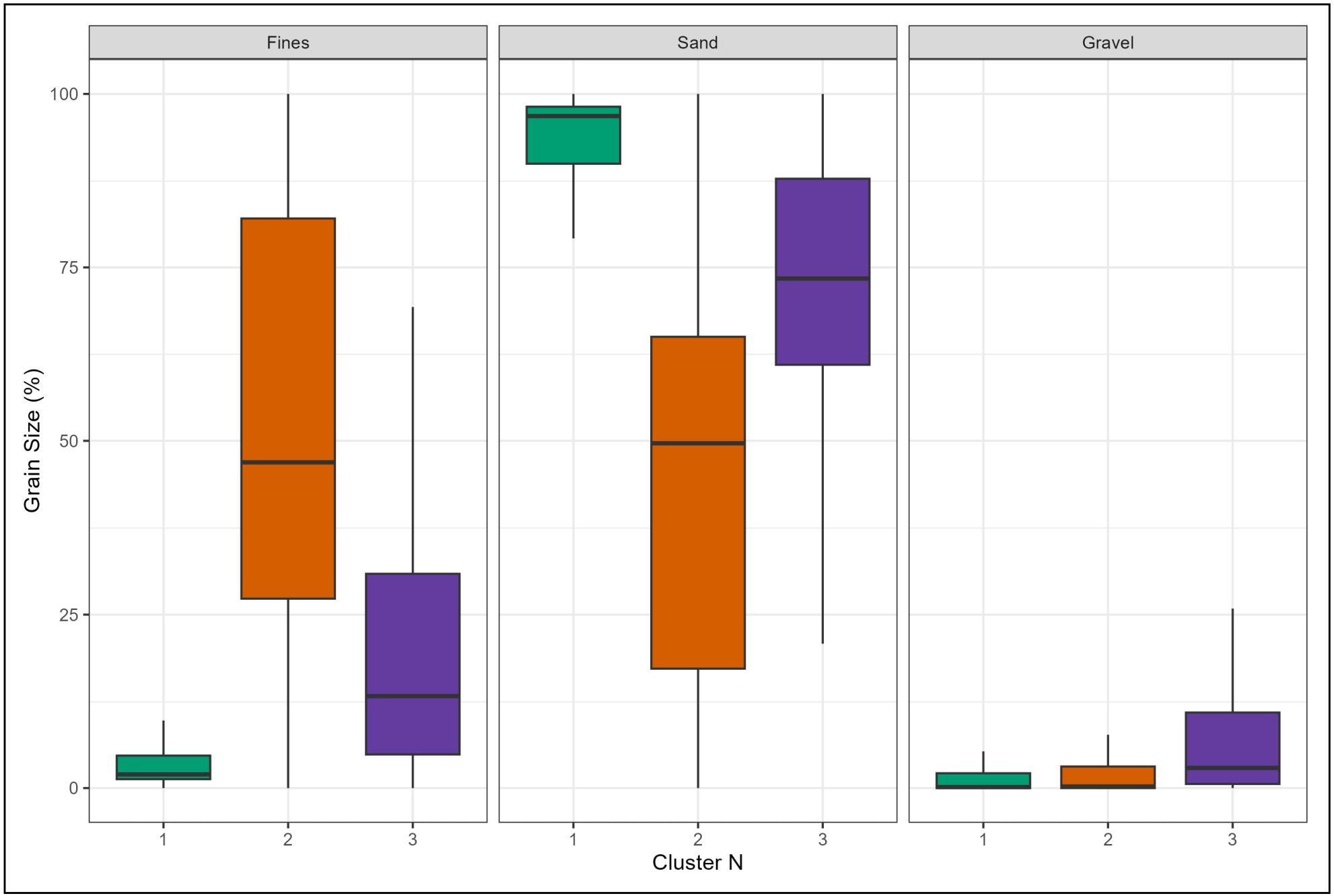


Figure C-7. Boxplots of Grain Size by Cluster

ERM

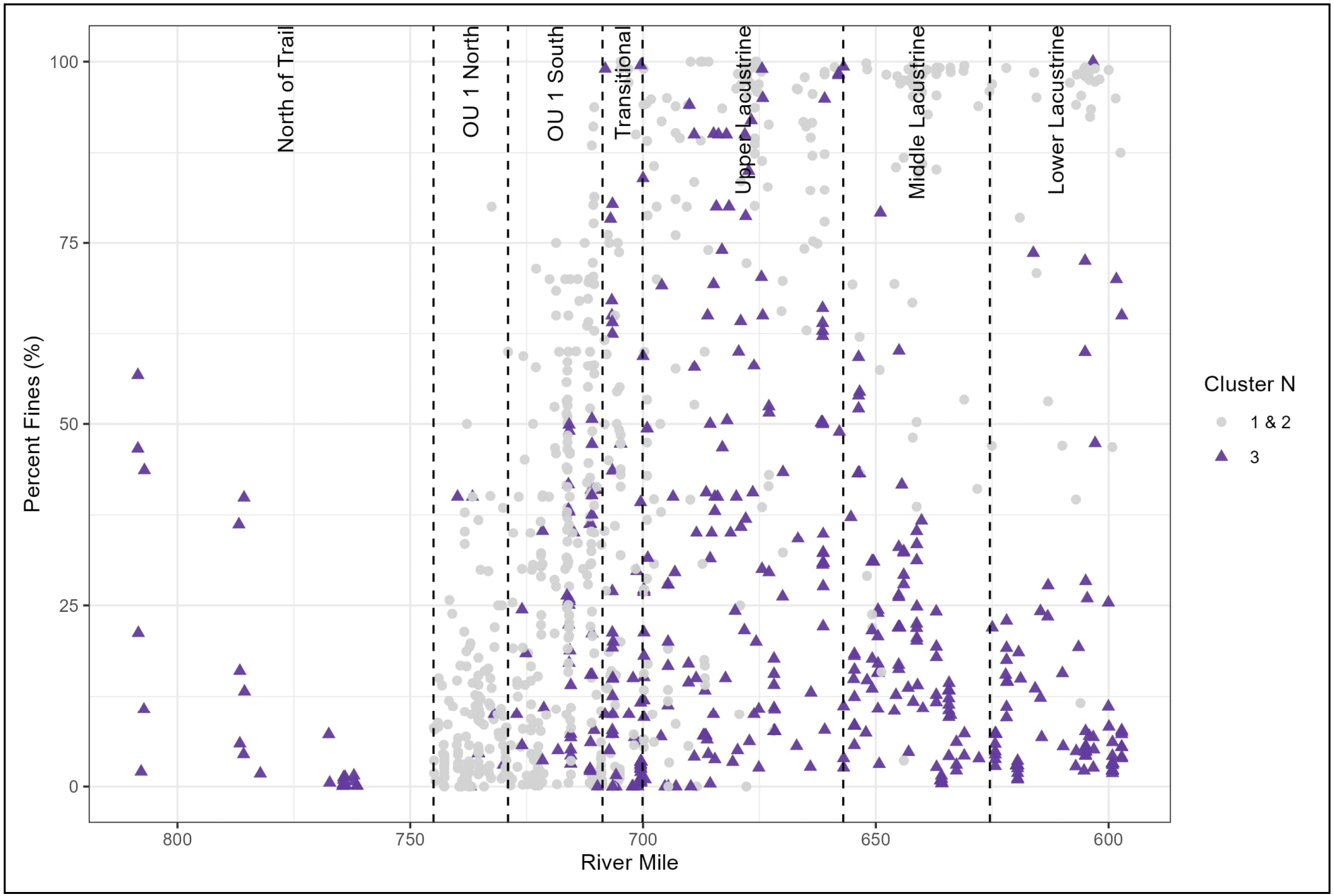
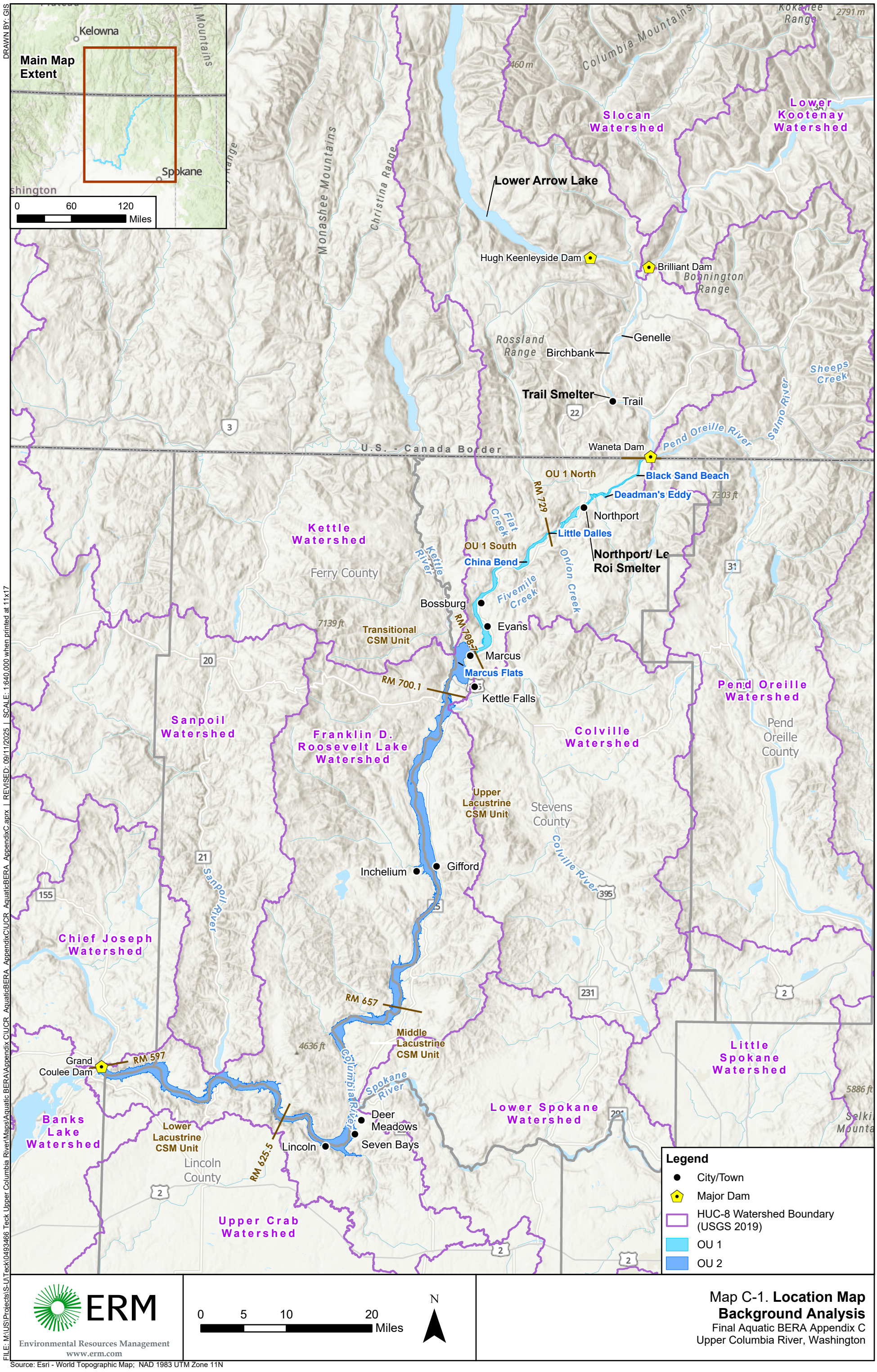


Figure C-8. Percent Fines by River Mile

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MAPS



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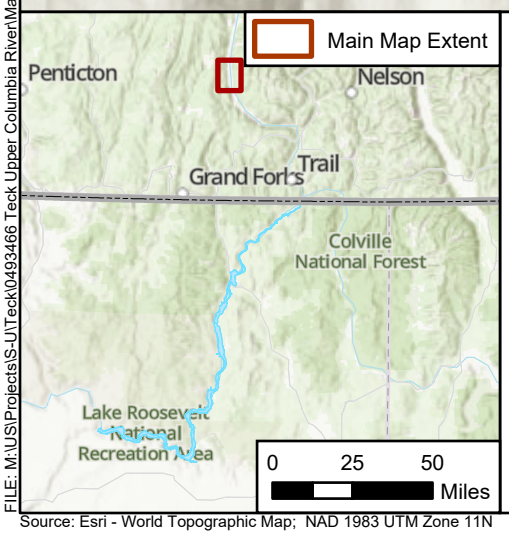
Map C-1. **Location Map Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

DRAWN BY: GIS | REVISED: 09/11/2025 | SCALE: 1:640,000 when printed at 11x17

FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix C\UCR_AquaticBERA_AppendixC.aprx





Legend

- 2013 Phase 2 Sediment Study
- 2019 Phase 3 Sediment Study

N

0 3,600 7,200 Feet

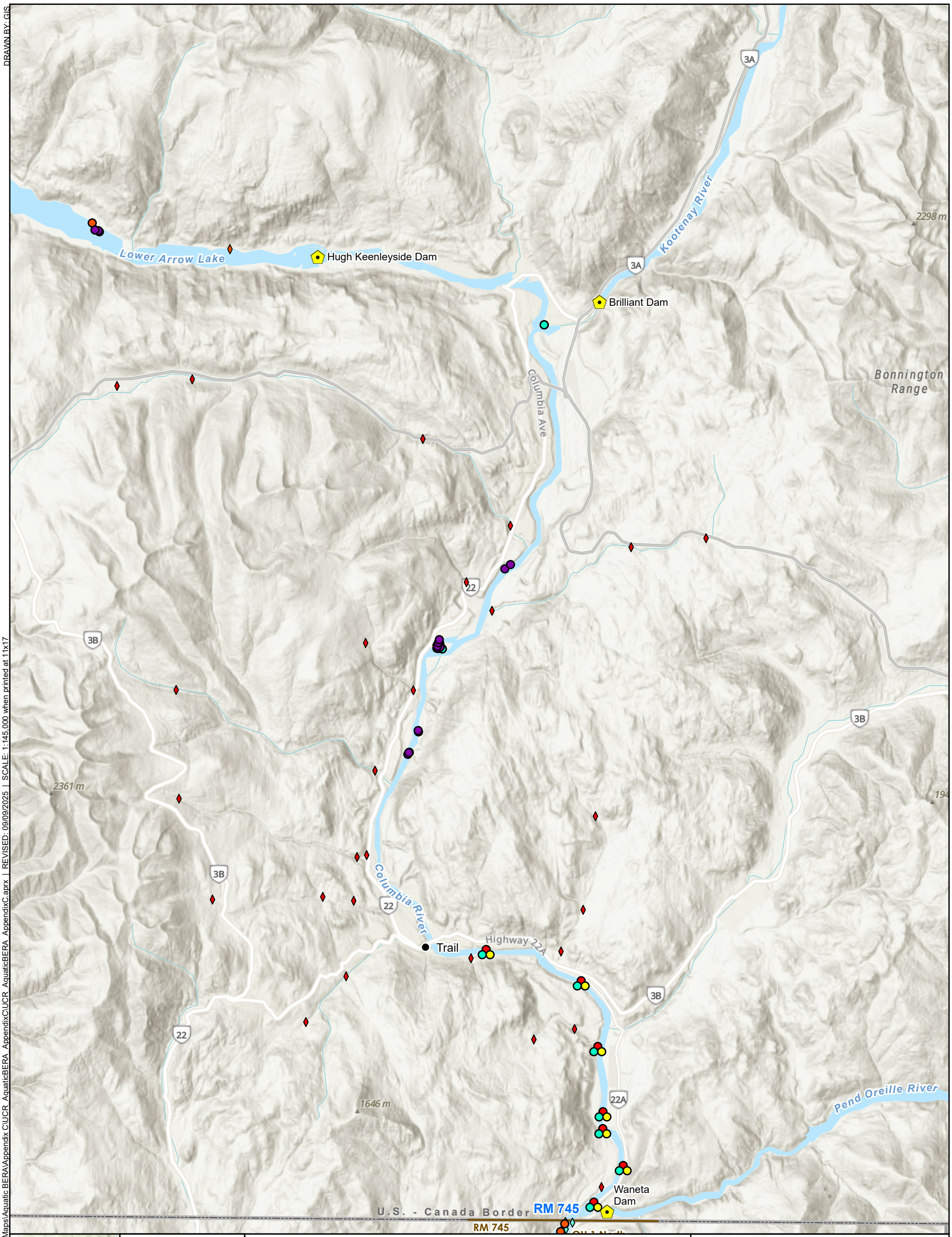
Map C-2a. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

DRAWN BY: GIS

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Map C-2b. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

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DRAWN BY: GIS

U.S. - Canada Border
RM 745
RM 745
OU 1 North
2607 ft
2532 ft
3697 ft
Mitchell Mountain
Mitchell Rd
CC-Mitchell Rd
Mitchell Rd
Boundary Hwy
Black Sand Beach
Moraski Flat Rd
1506 ft
Mitchell Rd
Mitchell Rd
1466 ft
Boundary Hwy
Goodeve Creek
Columbia River
Matthews Creek
Woodspur Rd
Boundary Hwy
RM 740
Nixon Way
Nixon Way
Tom Bush Creek
Boundary Hwy
Nixon Way
4383 ft
Deadman's Eddy
3611 ft

Main Map Extent
Penticton
Nelson
Trail
Grand Forks
Colville National Forest
Lake Roosevelt National Recreation Area
0 25 50 Miles

Legend

- 2013 Phase 2 Sediment Study
- 2019 Phase 3 Sediment Study
- 2010 White Sturgeon Sediment Toxicity Study
- 2001 Expanded Site Investigation
- 2005 Phase 1 Sediment Sampling
- 2009–2011 Beach Sediment Study
- County Boundary

N

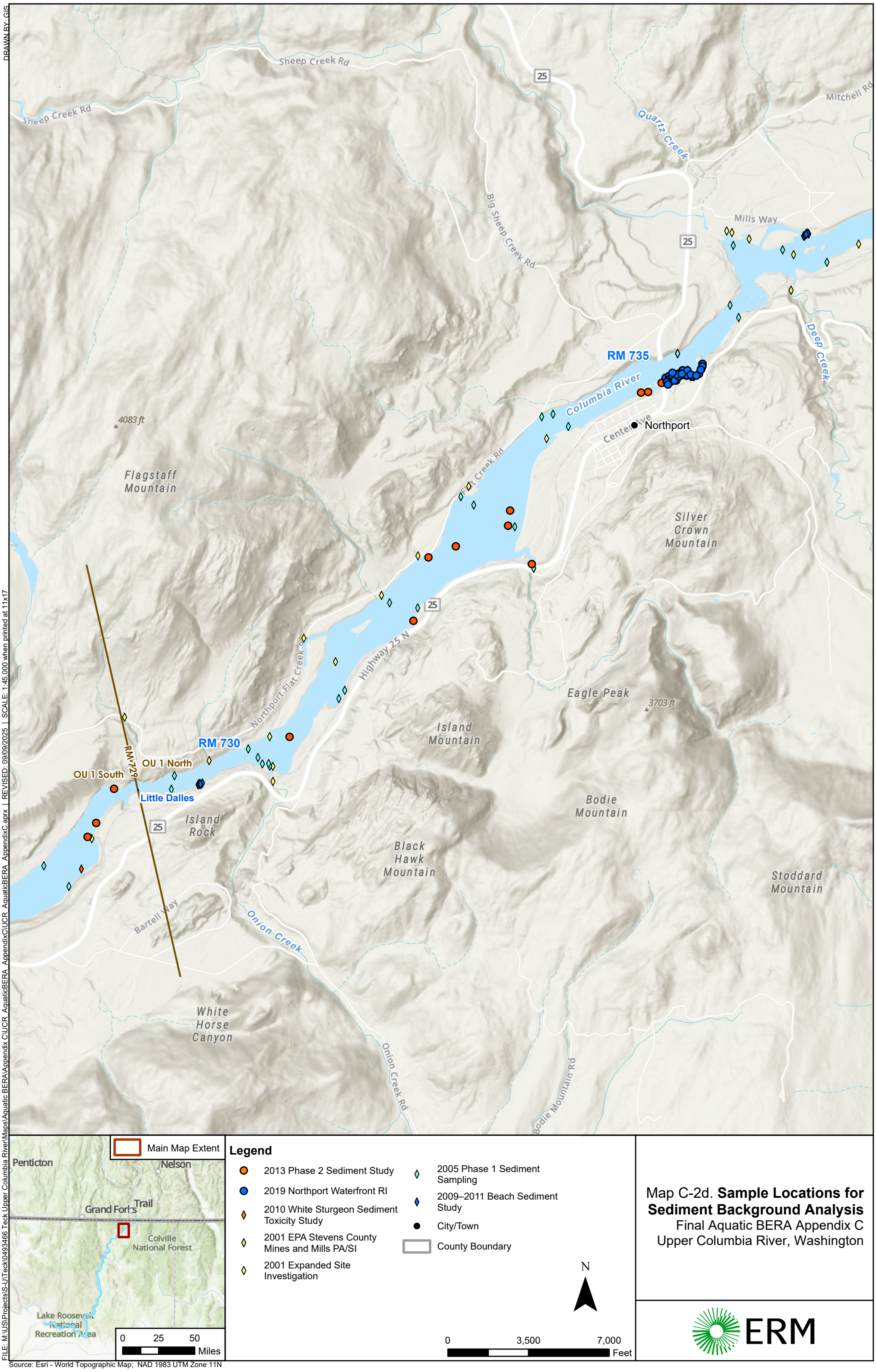
0 2,600 5,200 Feet

Map C-2c. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

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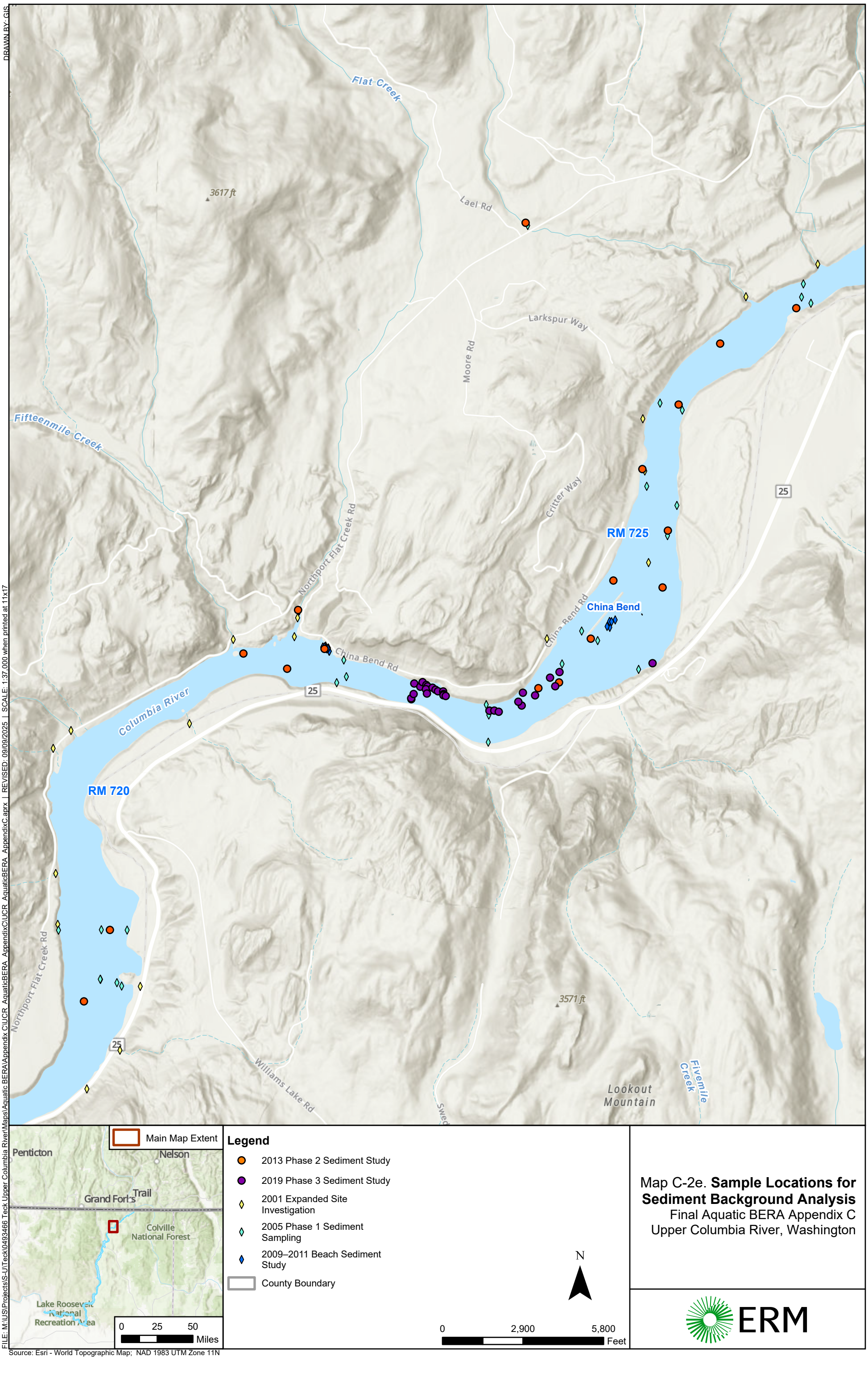


Map C-2d. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

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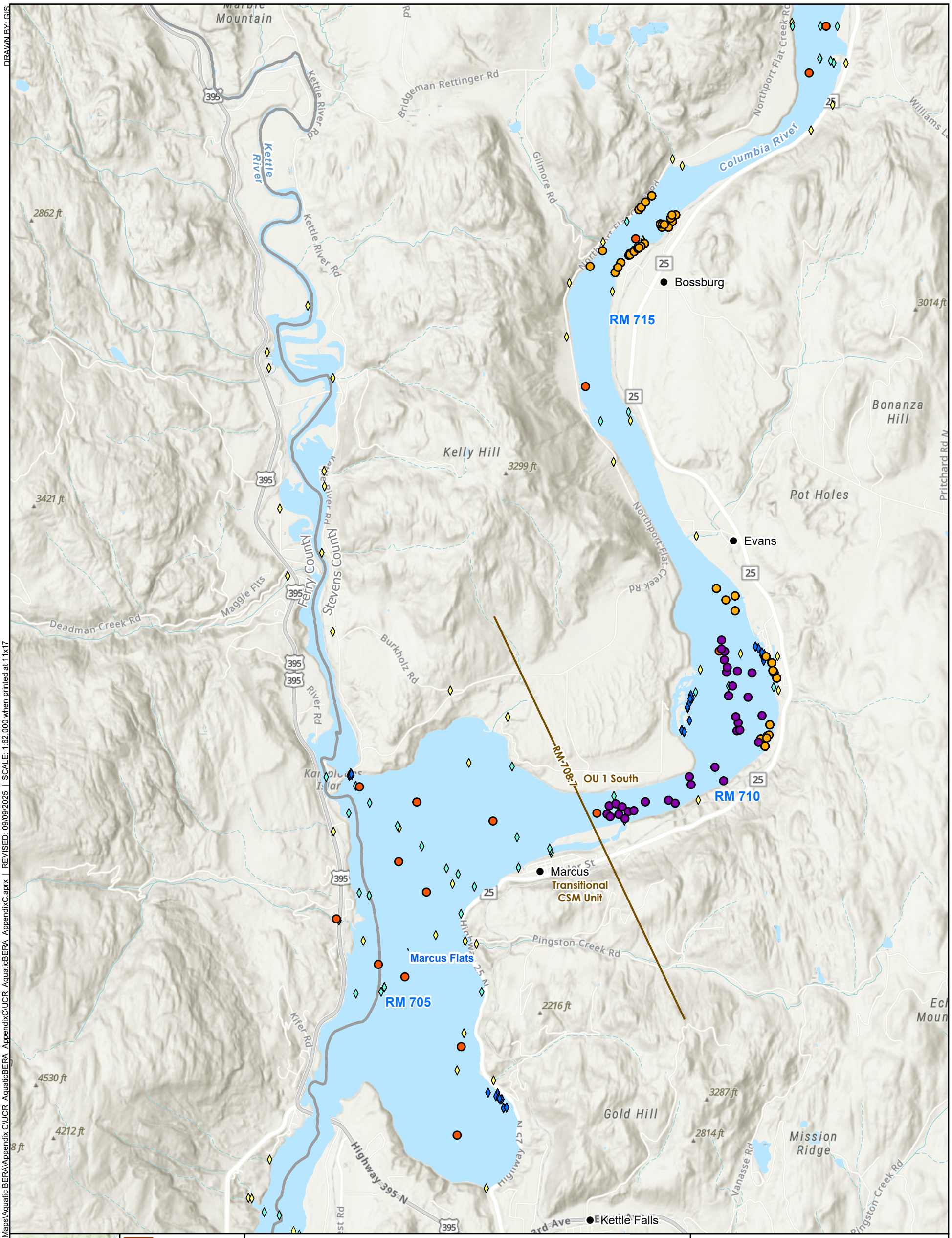
Map C-2e. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

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DRAWN BY: GIS



Map C-2f. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

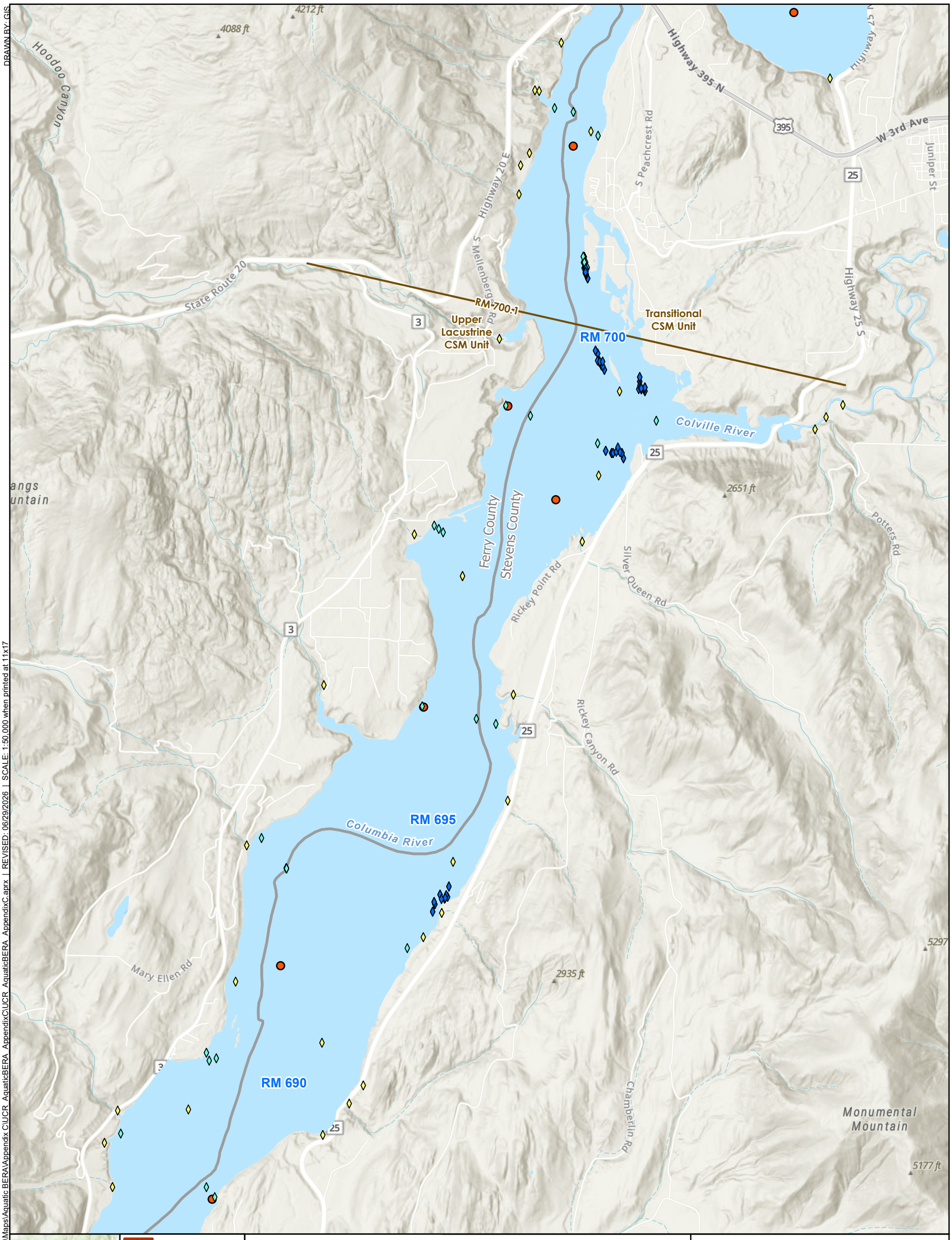
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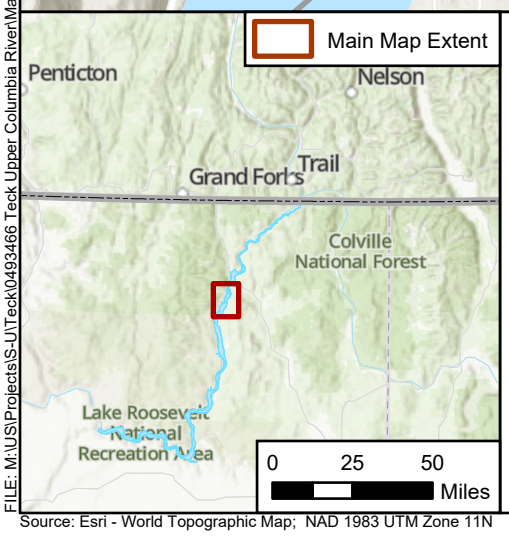
Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

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ERA AppendixC\UCR_AquaticBERA_AppendixC.aprx





Legend

- 2013 Phase 2 Sediment Study
- 2001 Expanded Site Investigation
- 2005 Phase 1 Sediment Sampling
- 2009–2011 Beach Sediment Study
- County Boundary

N

0 3,900 7,800
Feet

Map C-2g. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

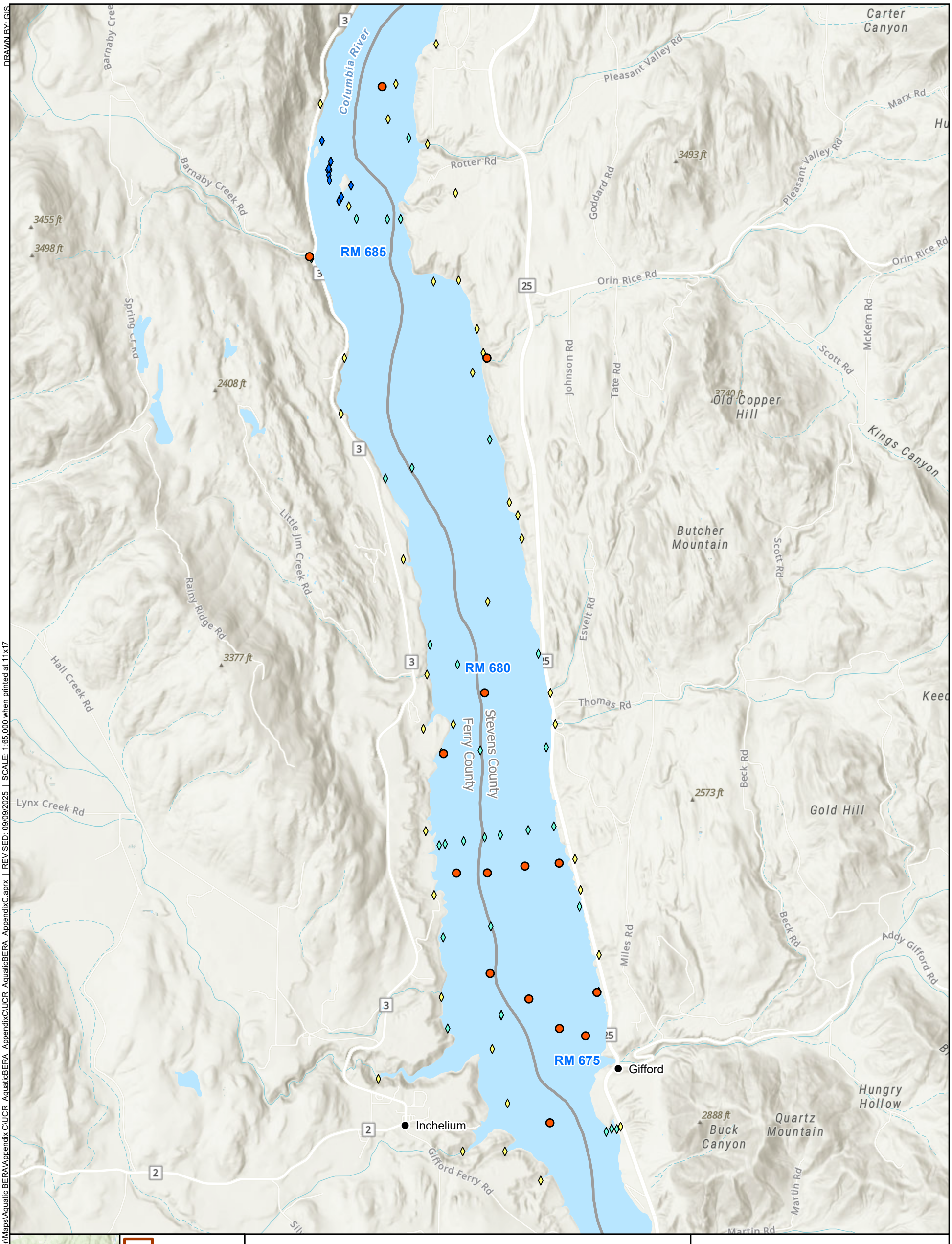
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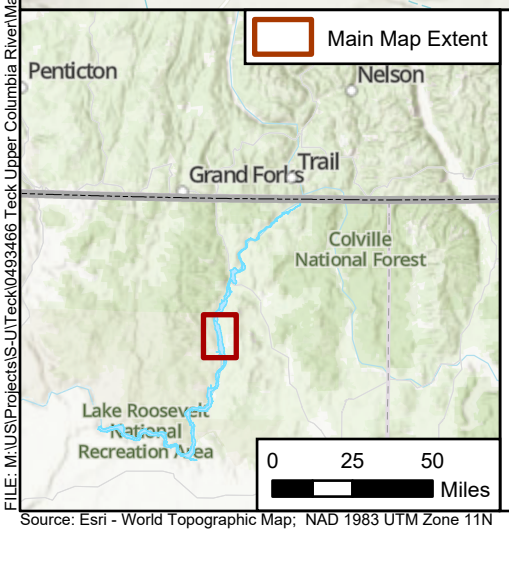
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Legend

- 2013 Phase 2 Sediment Study
- 2001 Expanded Site Investigation
- 2005 Phase 1 Sediment Sampling
- 2009–2011 Beach Sediment Study
- City/Town
- County Boundary

N

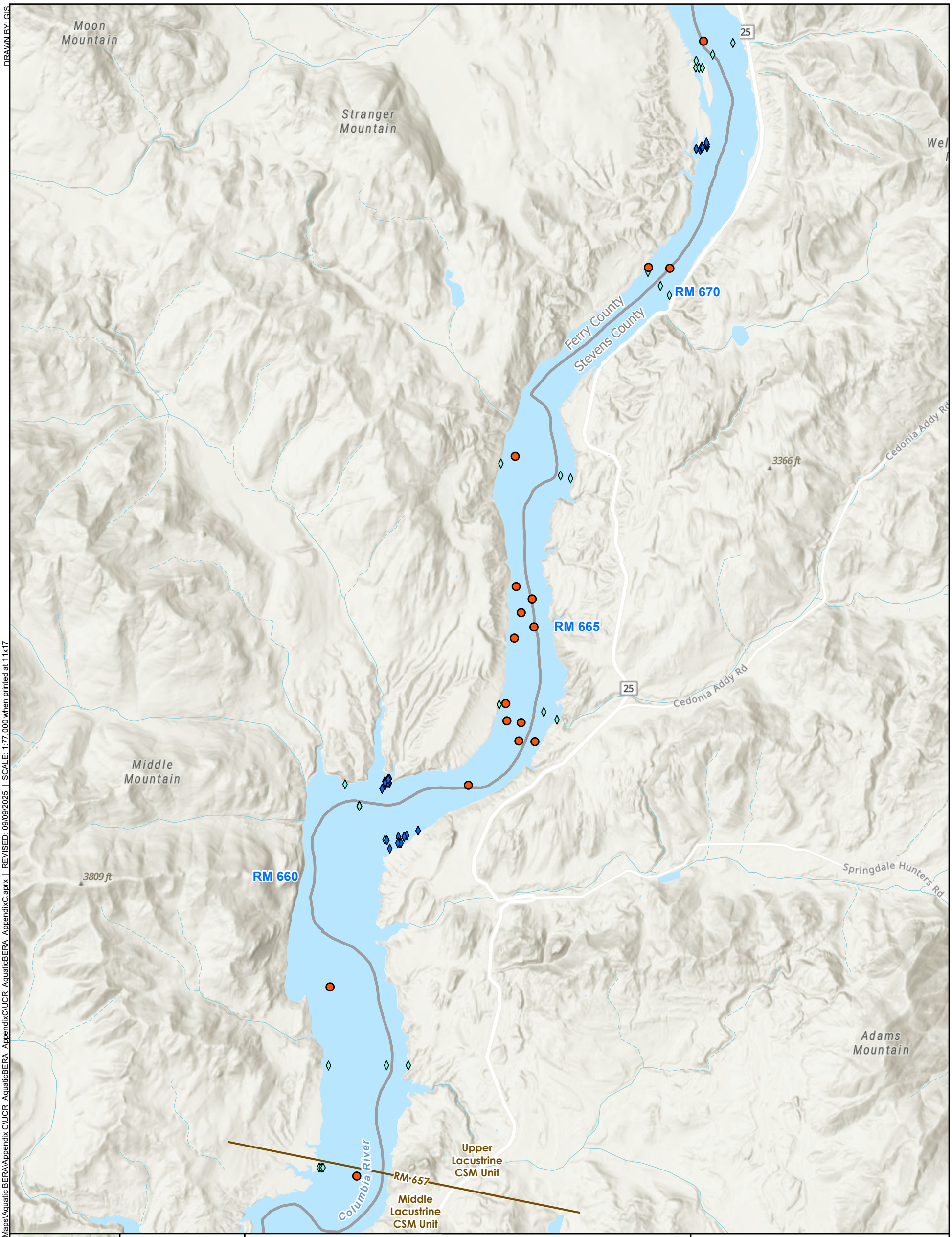
0 5,100 10,200
Feet

Map C-2h. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

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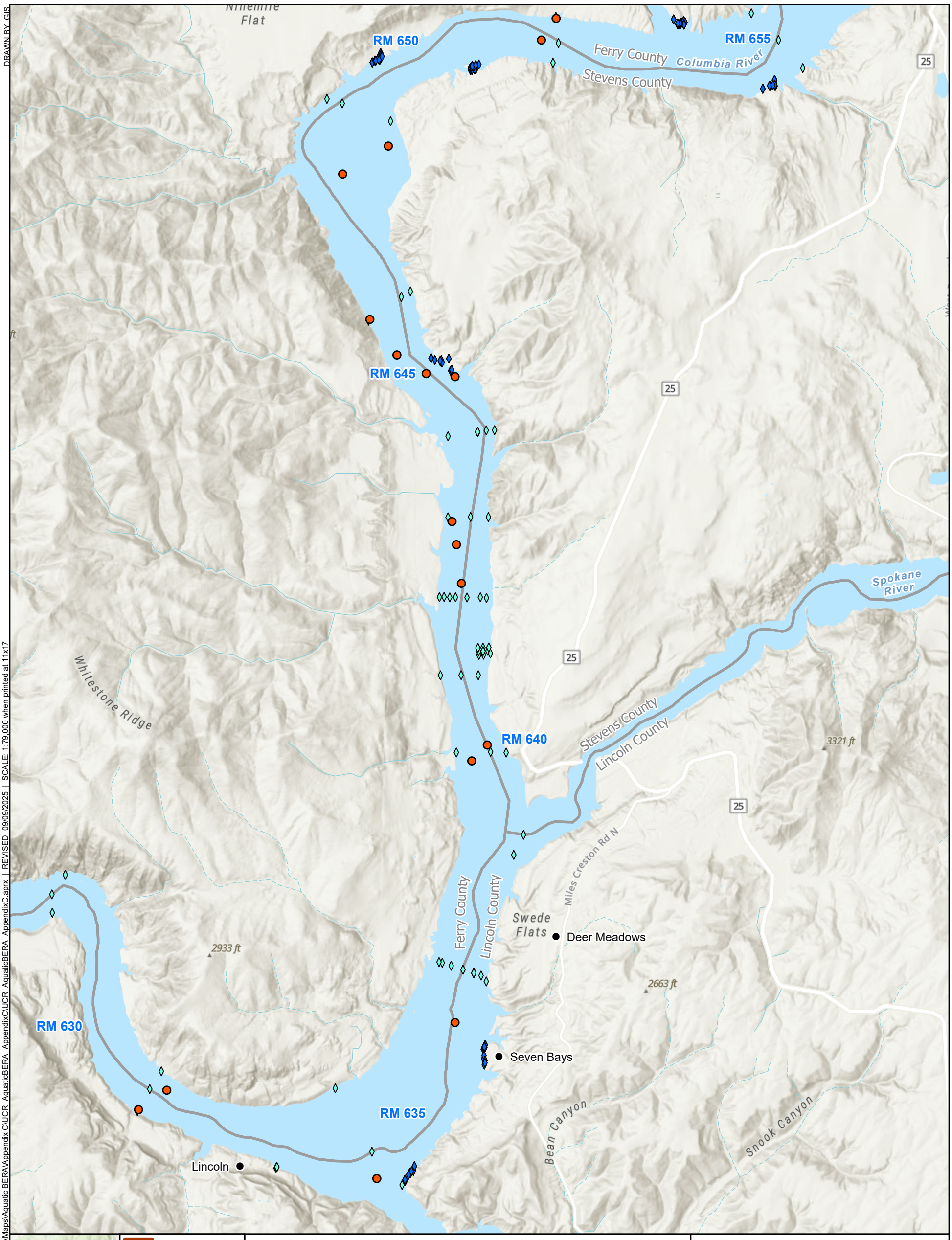
Map C-2i. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

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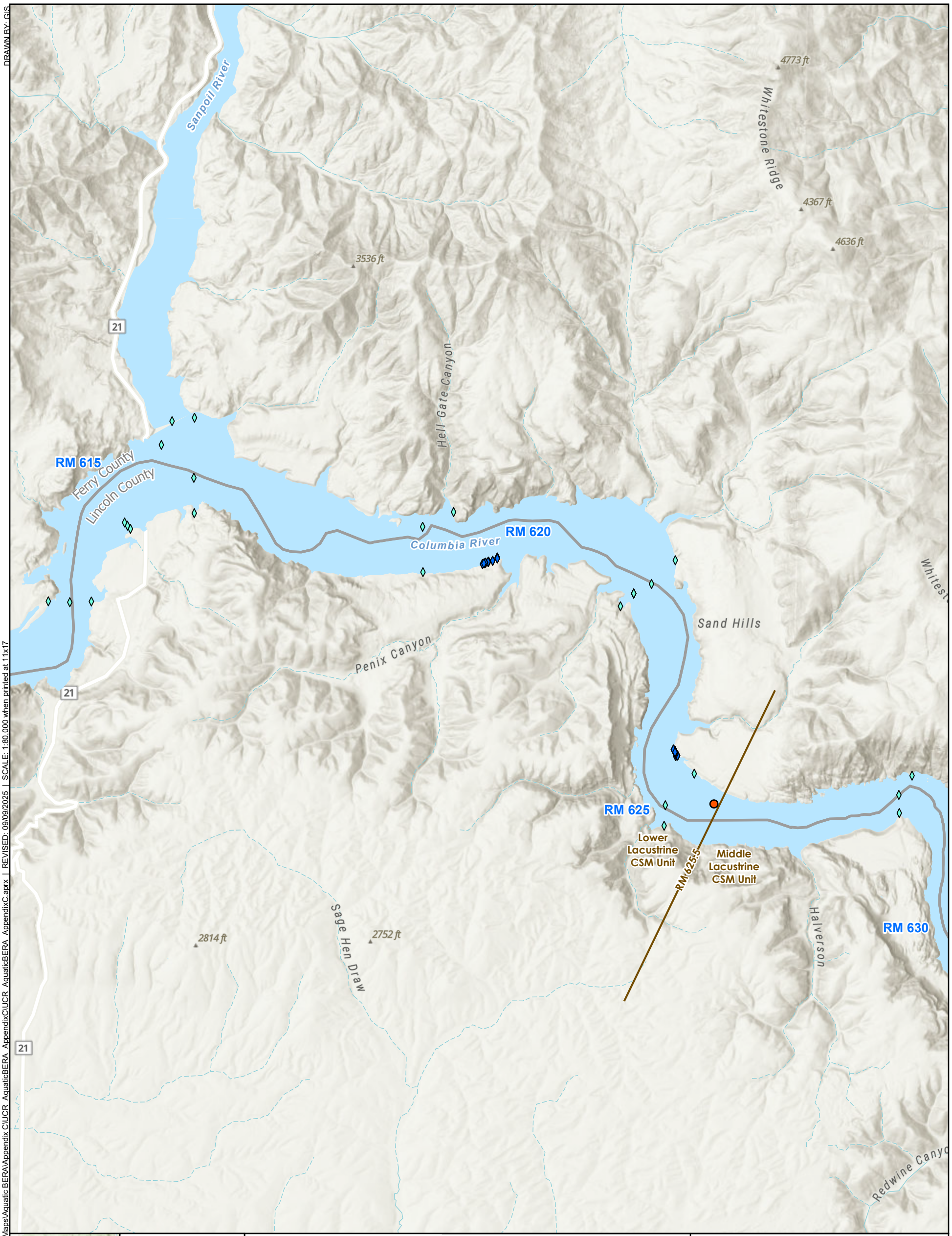
Map C-2j. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

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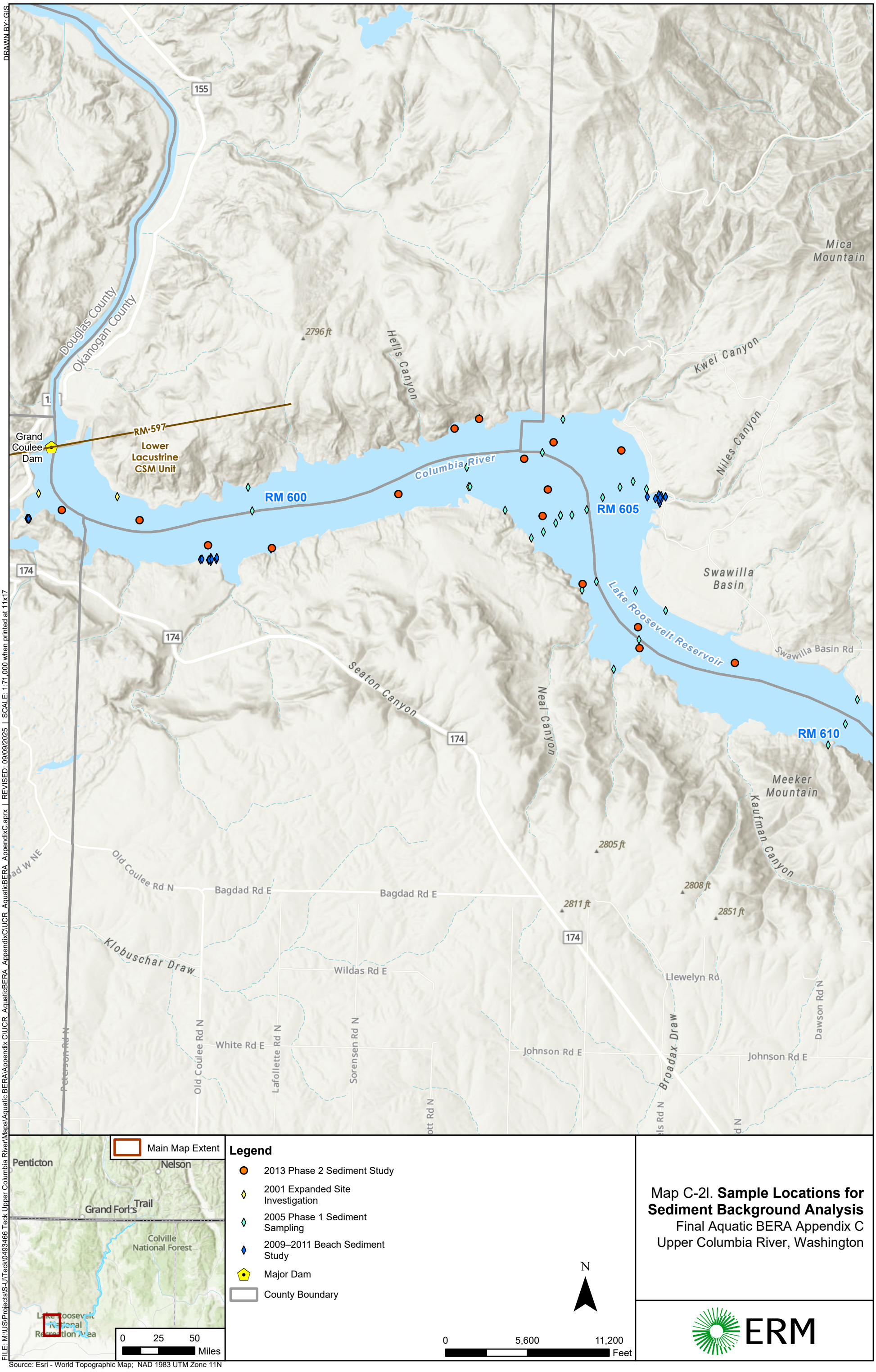
Map C-2k. **Sample Locations for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

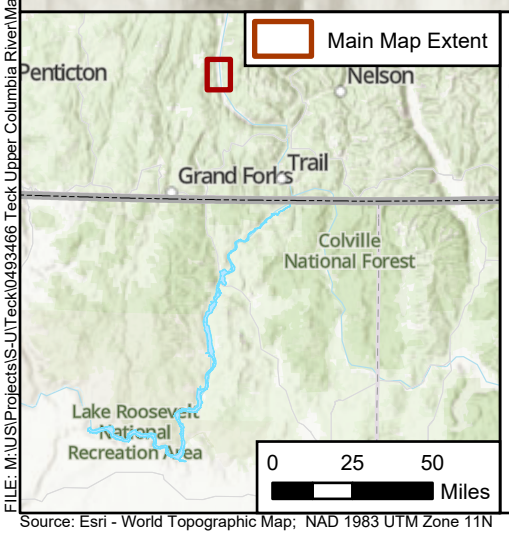
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155
Douglas County
Okanogan County
2796 ft
Hells Canyon
Mica Mountain
Kwei Canyon
Niles Canyon
RM 597
Grand Coulee Dam
Lower Lacustrine CSM Unit
Columbia River
RM 600
RM 605
Swawilla Basin
Lake Roosevelt Reservoir
Swawilla Basin Rd
174
Seaton Canyon
Neal Canyon
RM 610
Meeker Mountain
Kaufman Canyon
2805 ft
2808 ft
2811 ft
2851 ft
Old Coulee Rd N
Bagdad Rd E
Klobuschar Draw
Wildas Rd E
Llewelyn Rd
White Rd E
Johnson Rd E
Broadax Draw
Dawson Rd N
Peterson Rd N
Lafollette Rd N
Sorensen Rd N
Main Map Extent
Penticton
Nelson
Trail
Grand Forks
Colville National Forest
0 25 50
Miles
Legend
2013 Phase 2 Sediment Study
2001 Expanded Site Investigation
2005 Phase 1 Sediment Sampling
2009–2011 Beach Sediment Study
Major Dam
County Boundary
N
0 5,600 11,200
Feet
Map C-2l. Sample Locations for Sediment Background Analysis
Final Aquatic BERA Appendix C
Upper Columbia River, Washington
ERM
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Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N





Legend

Cluster Assignment

- Cluster 1 Sample
- Cluster 2 Sample
- Cluster 3 Sample

N

0 3,600 7,200 Feet

Map C-3a. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

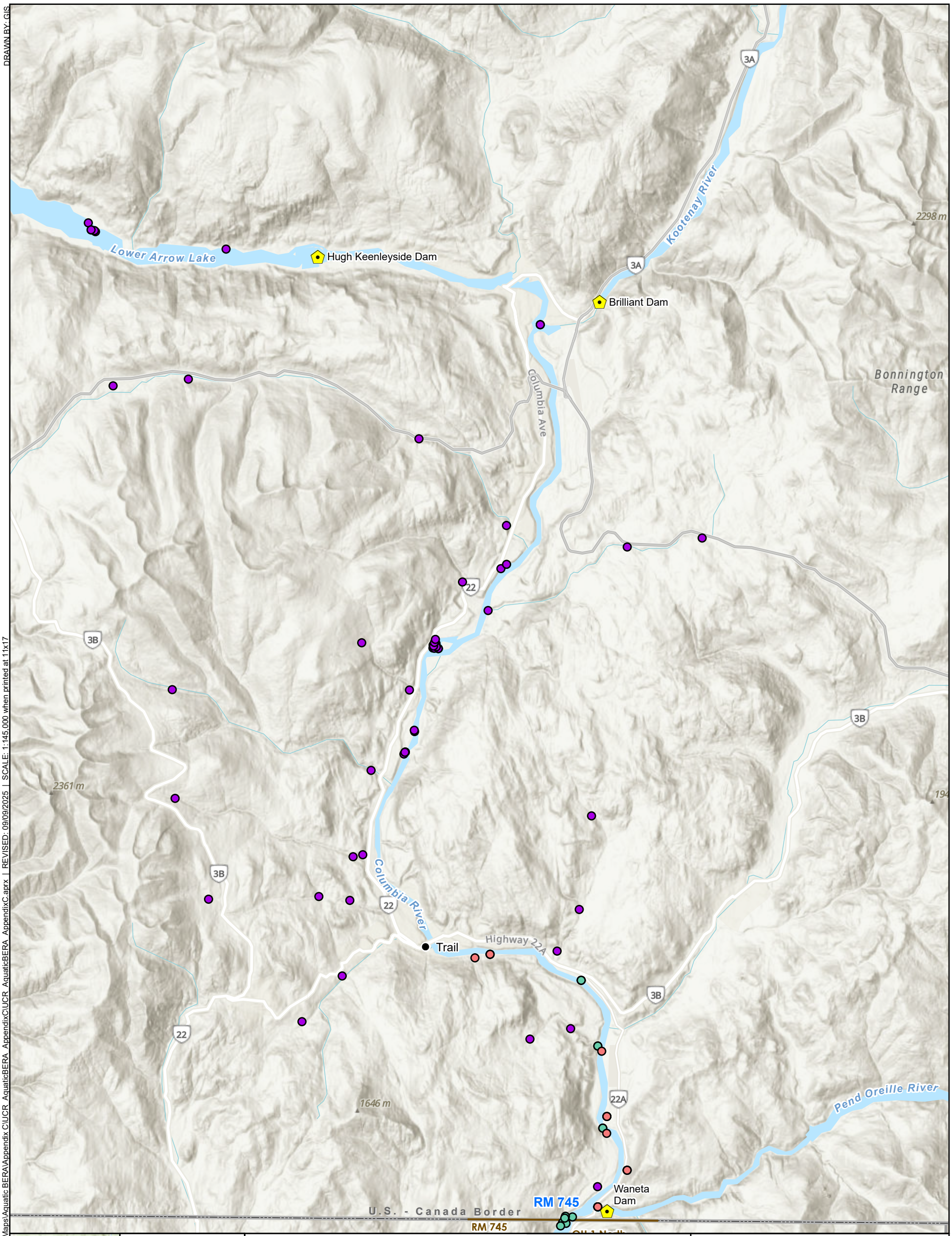
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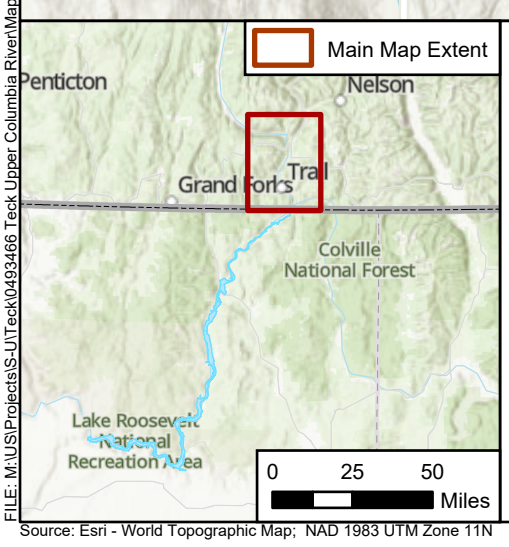
Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

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Legend

- City/Town
- Major Dam
- County Boundary

Cluster Assignment

- Cluster 1 Sample
- Cluster 2 Sample
- Cluster 3 Sample

N

0 11,000 22,000 Feet

Map C-3b. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix C\UCR_AquaticBERA_AppendixC.aprx | REVISED: 09/09/2025 | SCALE: 1:145,000 when printed at 11x17

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U.S. - Canada Border

RM 745

OU 1 North

RM 745

2532 ft

2607 ft

3697 ft

Mitchell Mountain

Mitchell Rd

CC-Mitchell Rd

Mitchell Rd

Boundary Hwy

Black Sand Beach

Mitchell Rd

Moraski Flat Rd

1506 ft

Mitchell Rd

1466 ft

Boundary Hwy

Goodeve Creek

Columbia River

Matthews Creek

Woodspur Rd

Boundary Hwy

RM 740

Nixon Way Nixon Way

Tom Bush Creek

Boundary Hwy

Nixon Way

4383 ft

Deadman's Eddy

3611 ft

Penticton

Nelson

Trail

Grand Forks

Colville National Forest

Lake Roosevelt National Recreation Area

Main Map Extent

0 25 50 Miles

Legend

County Boundary

Cluster Assignment

Cluster 1 Sample

Cluster 2 Sample

Cluster 3 Sample

N

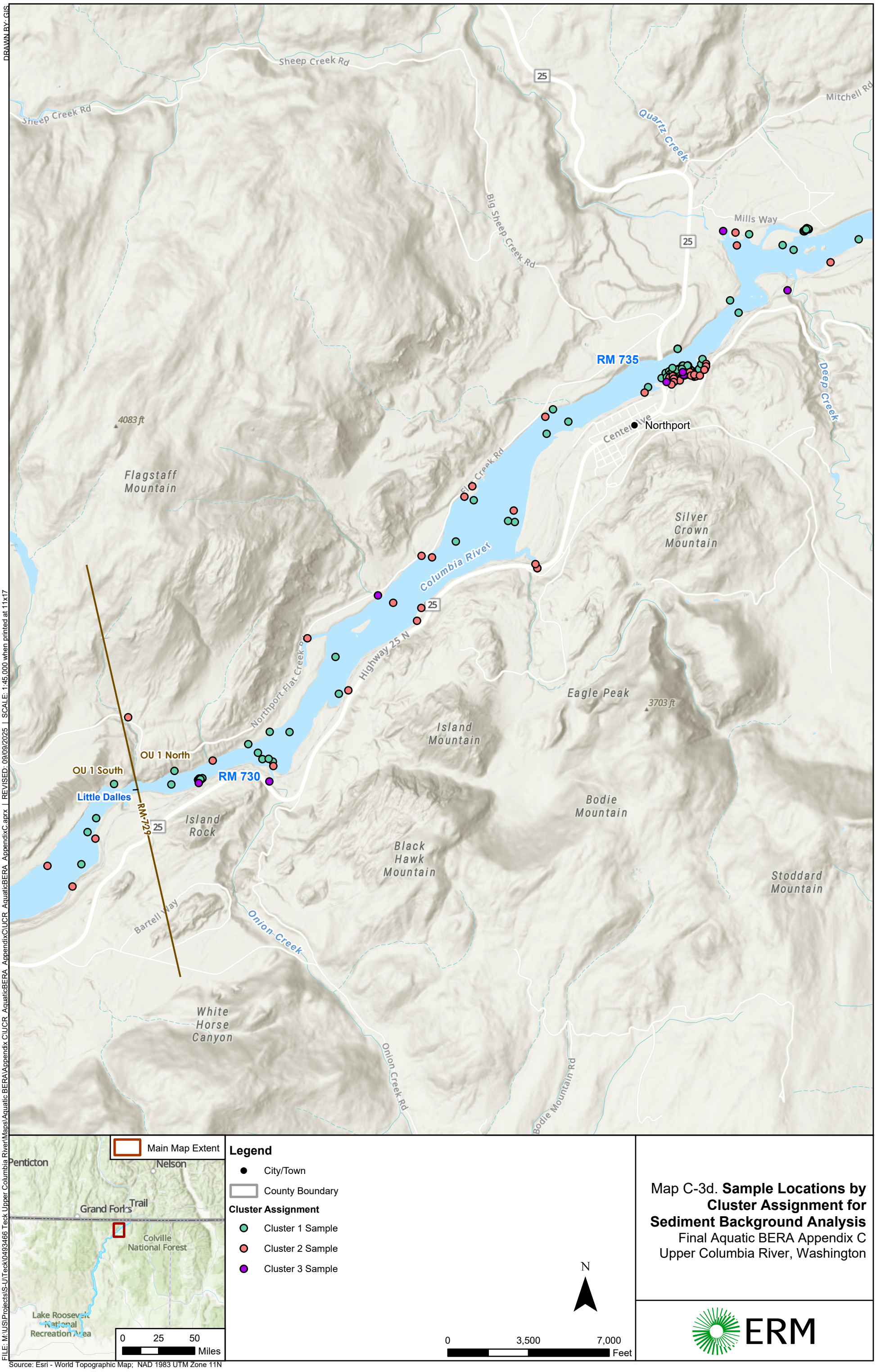
0 2,600 5,200 Feet

Map C-3c. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix C\UCR_AquaticBERA_AppendixC.aprx | REVISED: 09/09/2025 | SCALE: 1:33,000 when printed at 11x17



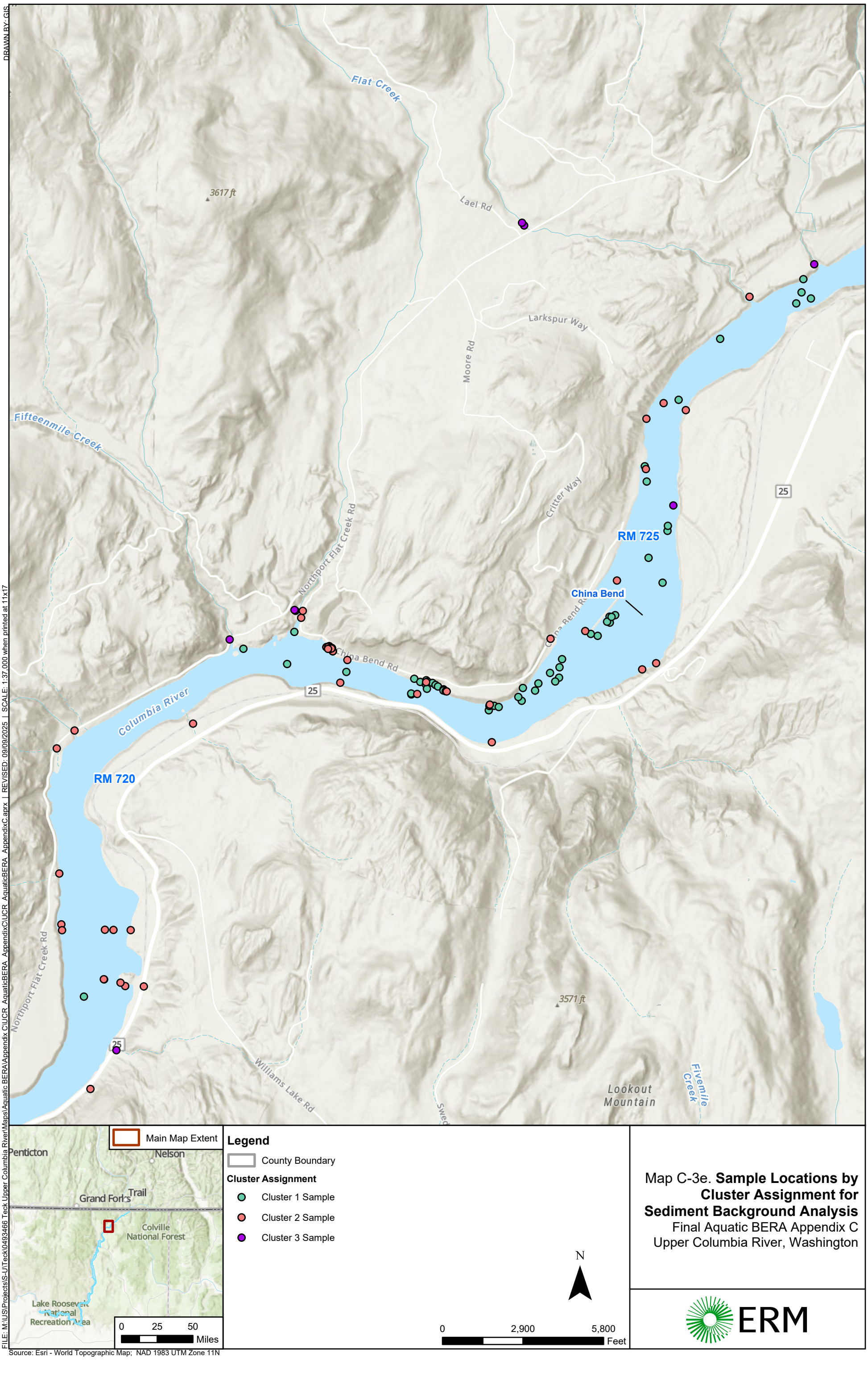
Map C-3d. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

DRAWN BY: GIS

FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix C\UCR_AquaticBERA_AppendixC.aprx | REVISED: 09/09/2025 | SCALE: 1:45,000 when printed at 11x17

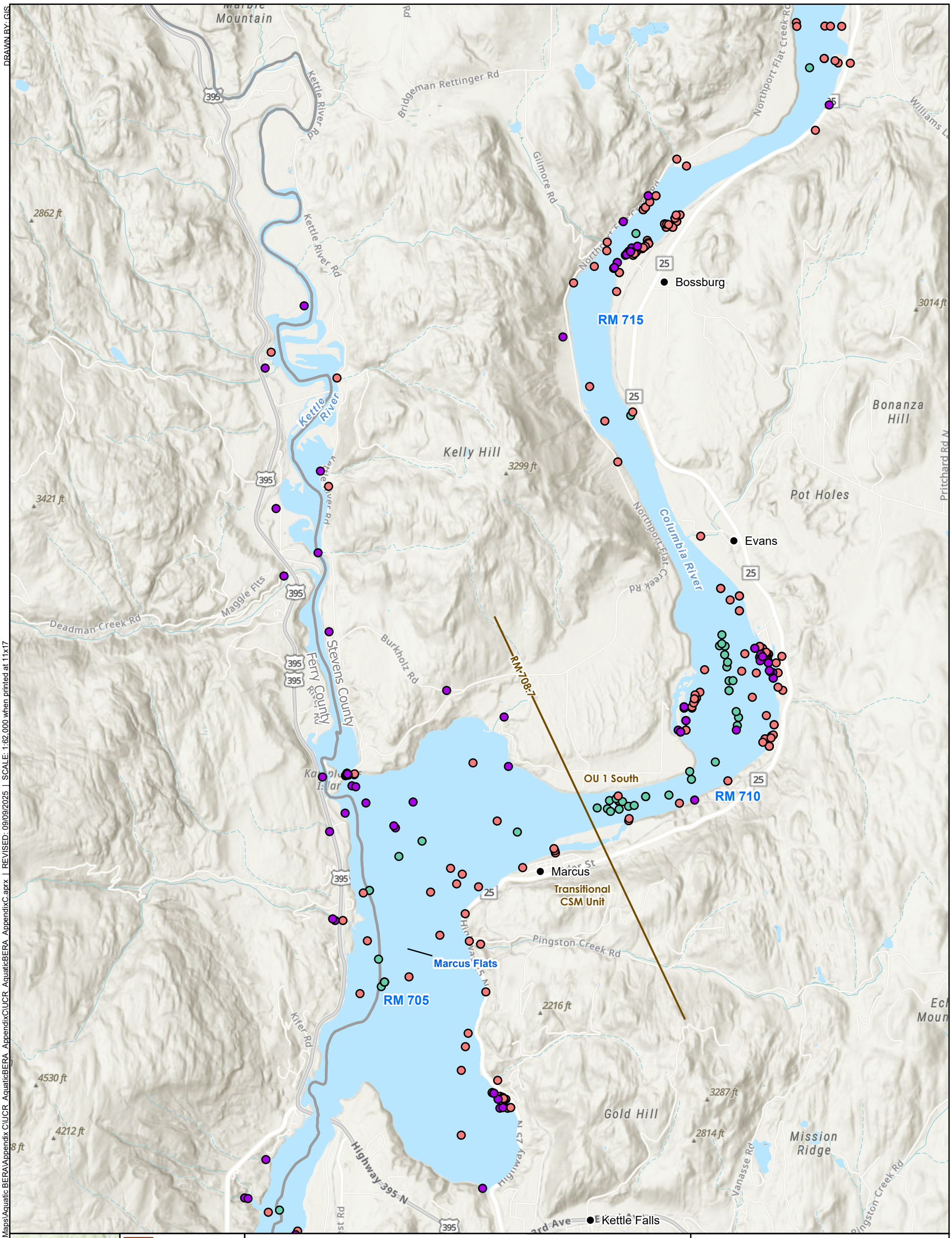


Map C-3e. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix C\UCR_AquaticBERA_AppendixC.aprx | REVISED: 09/09/2025 | SCALE: 1:37,000 when printed at 11x17

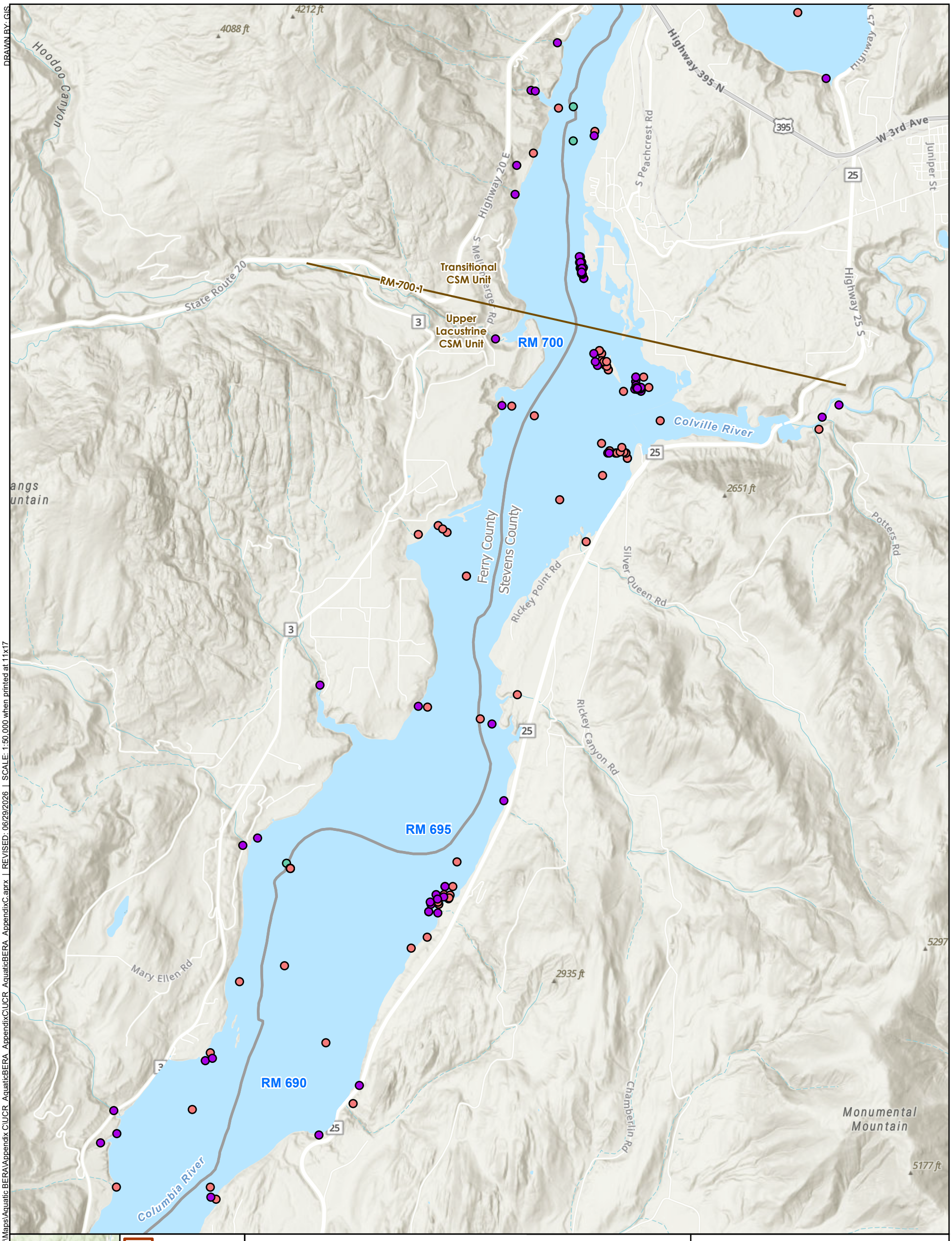


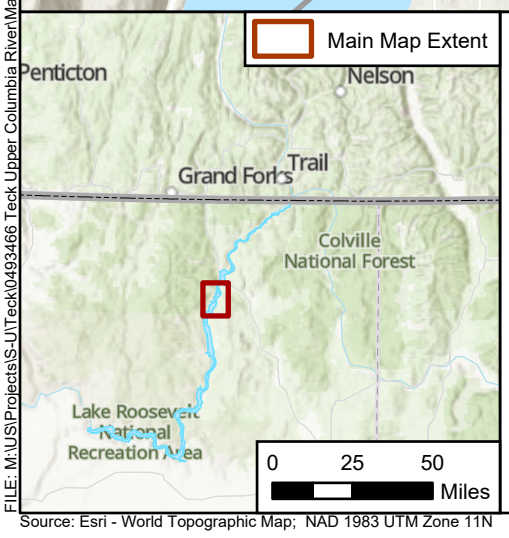
Map C-3f. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

DRAWN BY: GIS
FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix C\UCR_AquaticBERA_AppendixC.aprx | REVISED: 09/09/2025 | SCALE: 1:62,000 when printed at 11x17





Legend

- County Boundary

Cluster Assignment

- Cluster 1 Sample
- Cluster 2 Sample
- Cluster 3 Sample

N

0 3,900 7,800
Feet

Map C-3g. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

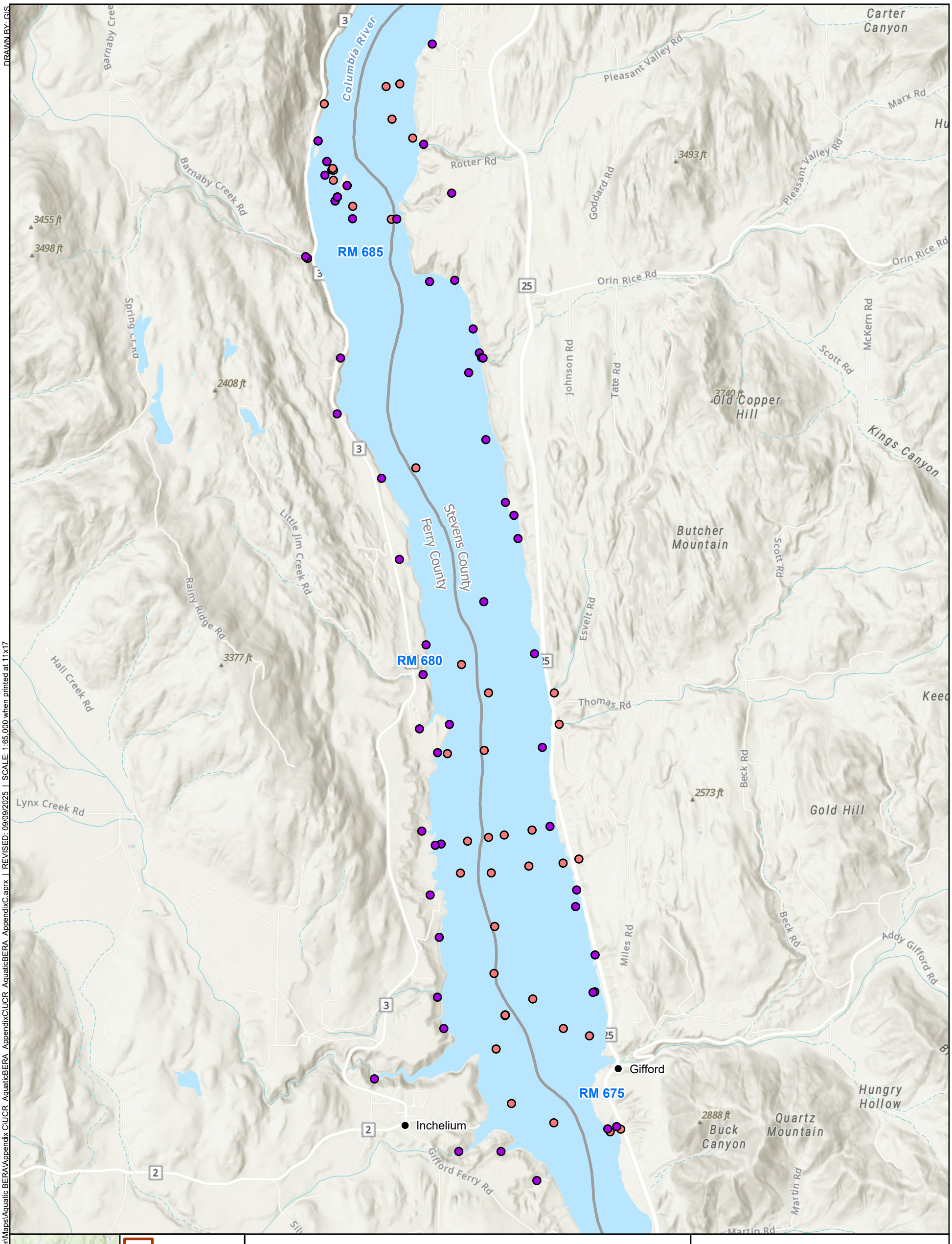
ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

DRAWN BY: GIS

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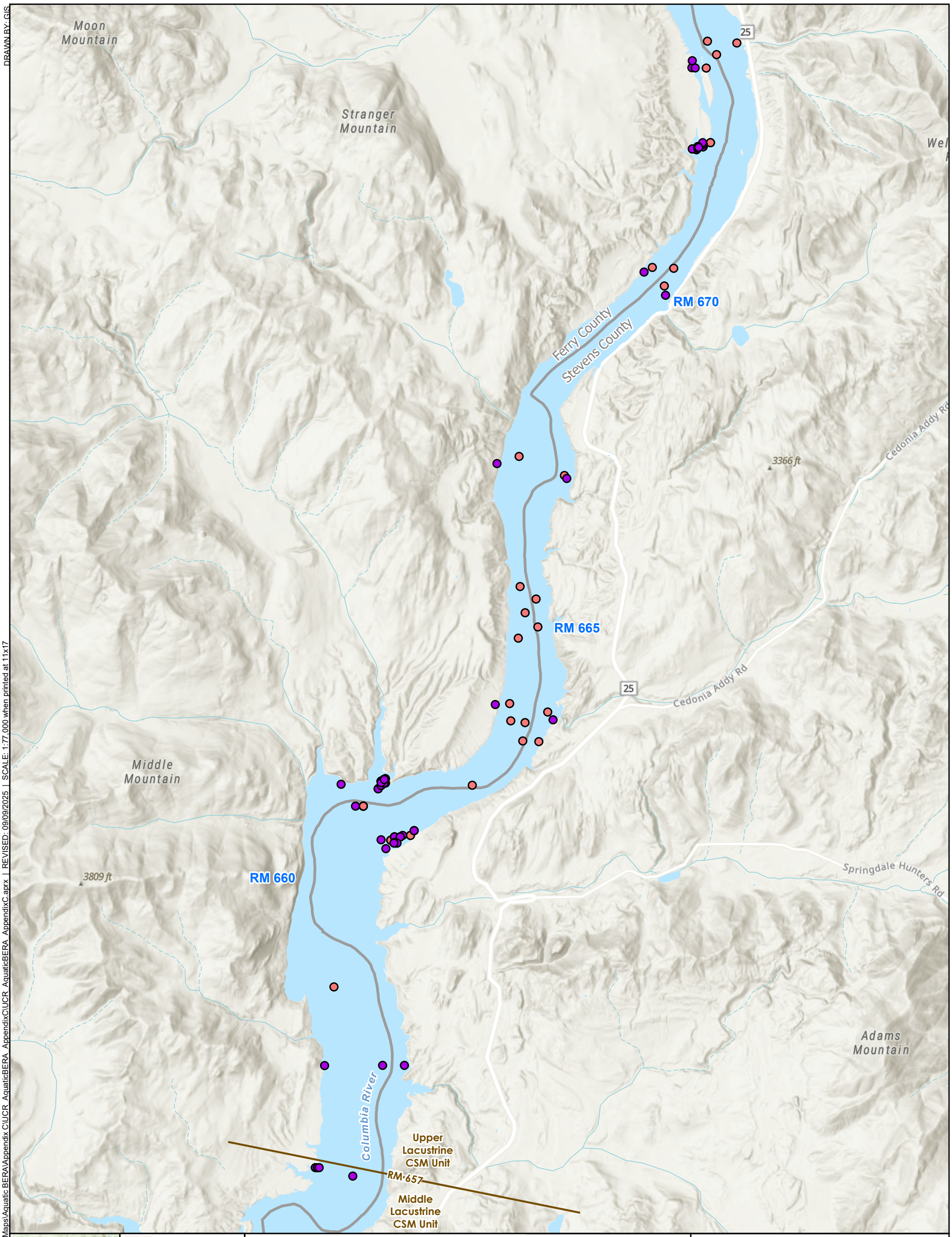
Map C-3h. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix C\UCR_AquaticBERA_AppendixC.aprx | REVISED: 09/09/2025 | SCALE: 1:65,000 when printed at 11x17

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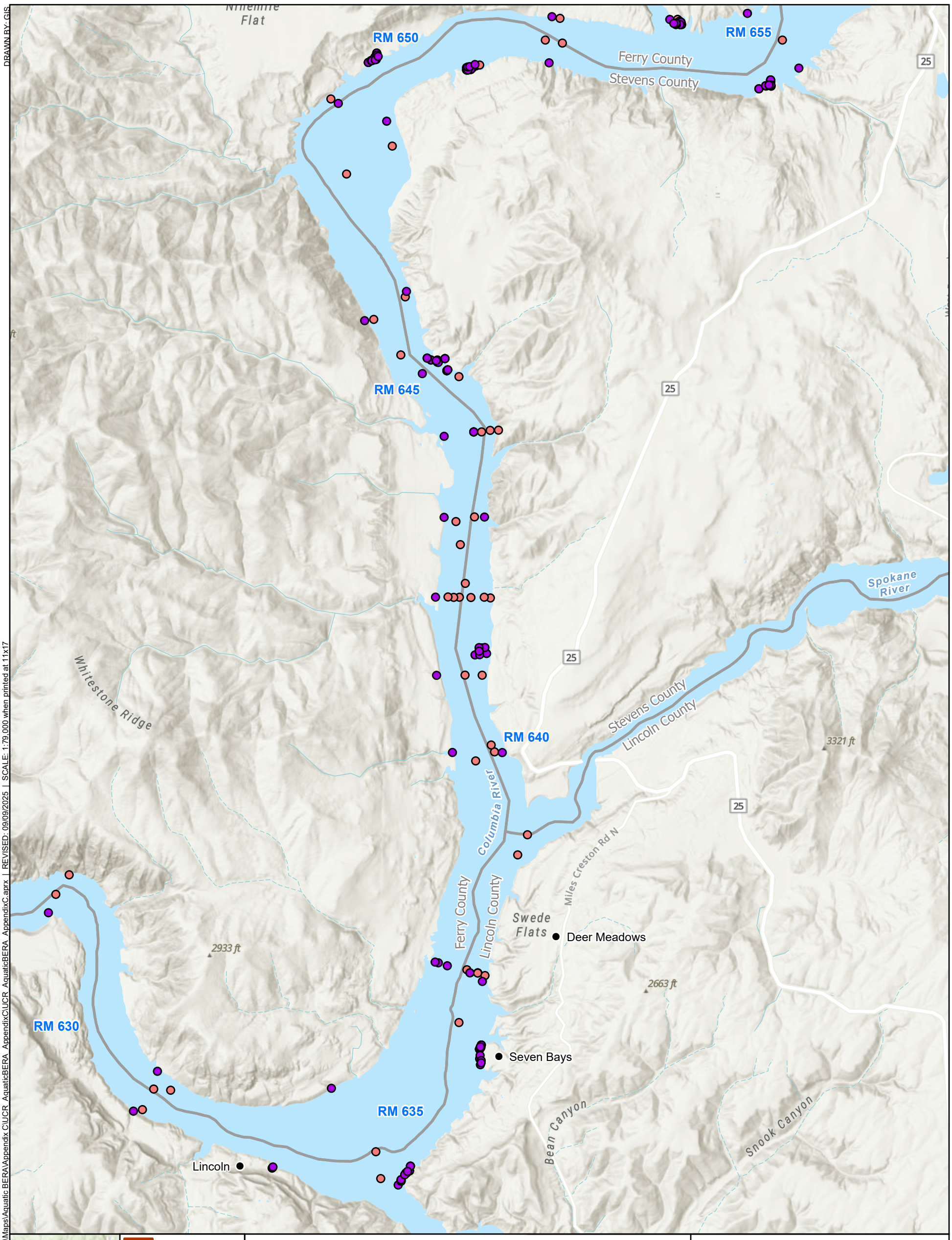


Map C-3i. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix C\UCR_AquaticBERA_AppendixC.aprx | REVISED: 09/09/2025 | SCALE: 1:77,000 when printed at 11x17



Map C-3j. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

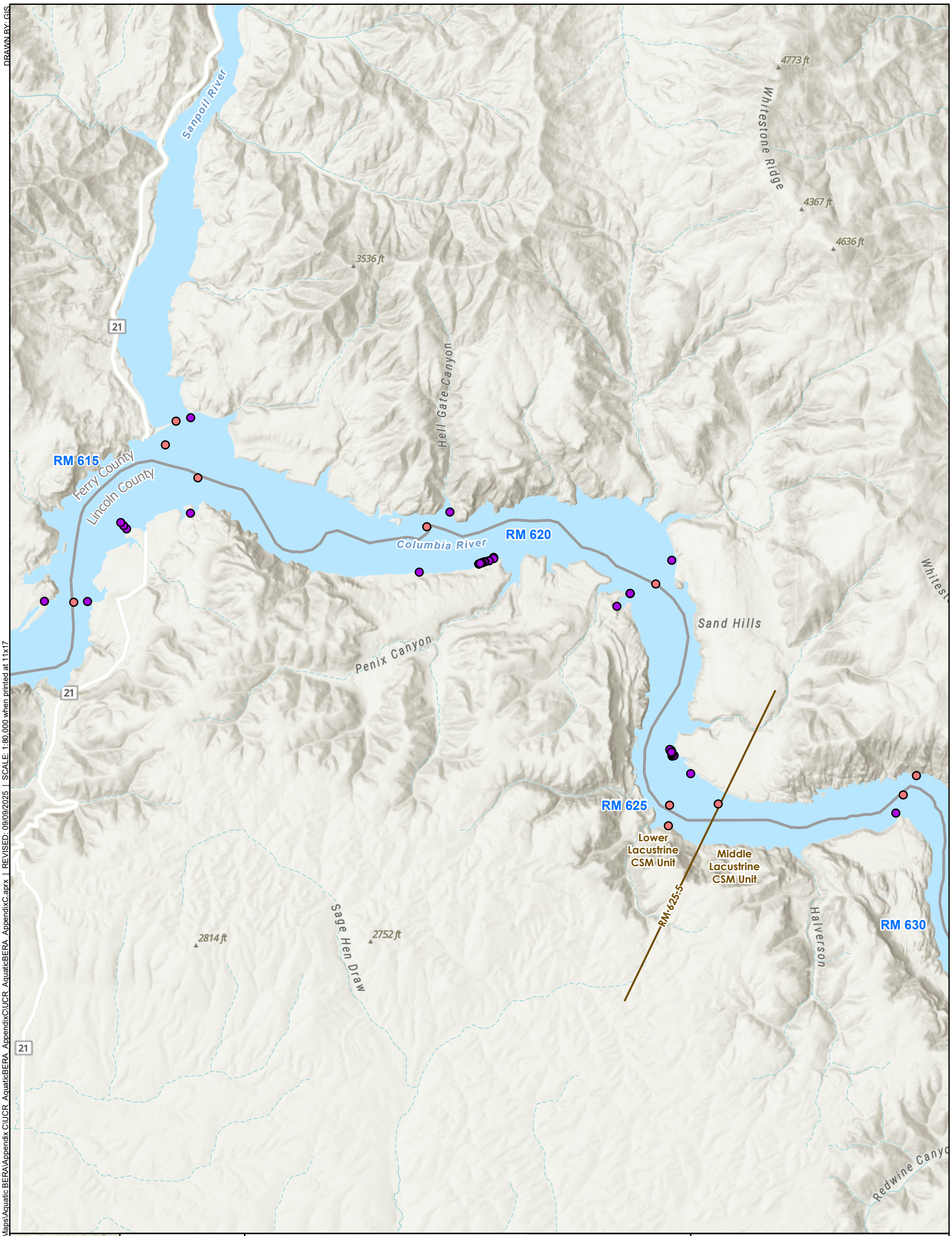
ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

DRAWN BY: GIS

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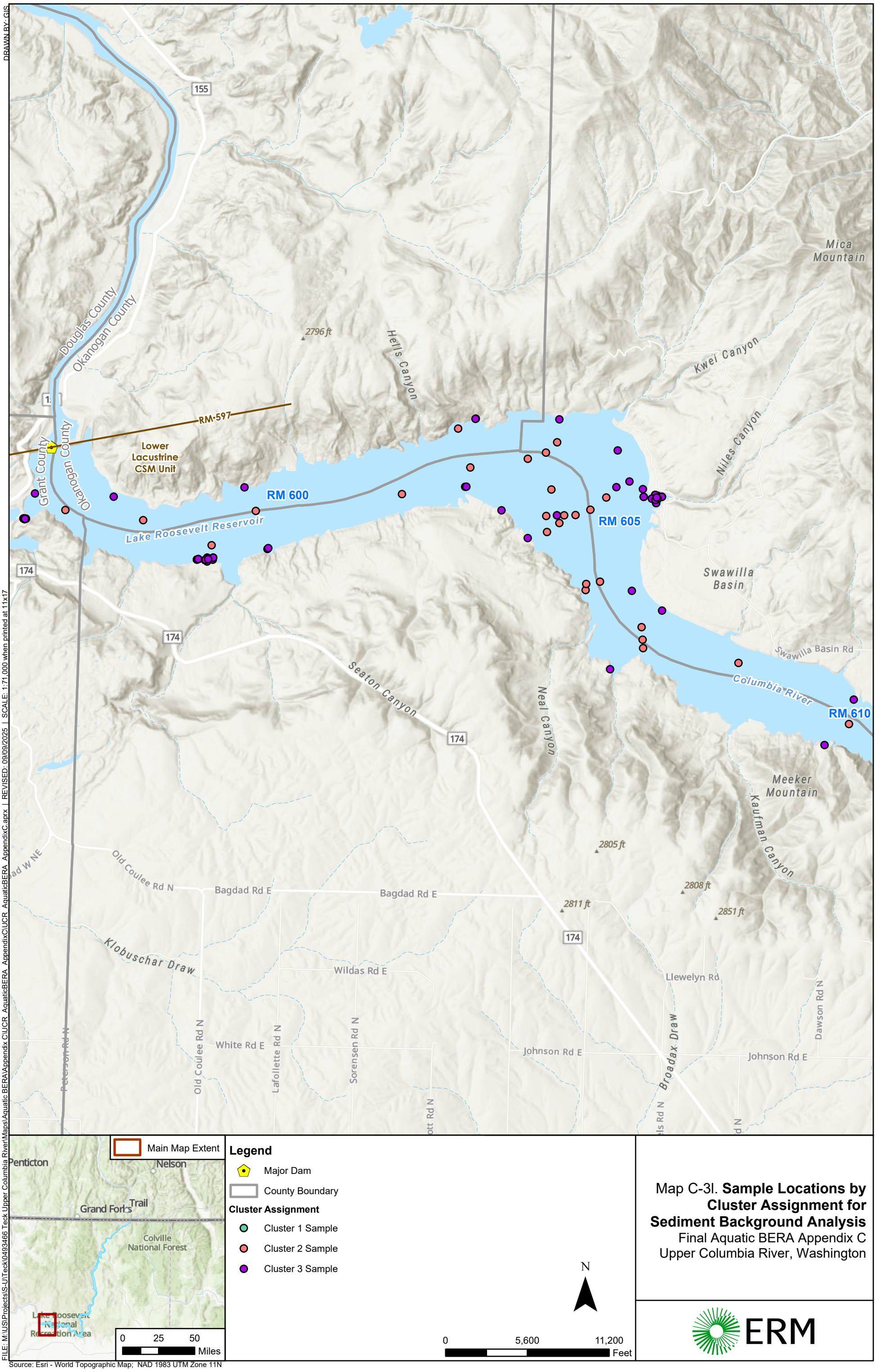


Map C-3k. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix C\UCR_AquaticBERA_AppendixC.aprx | REVISED: 09/09/2025 | SCALE: 1:80,000 when printed at 11x17



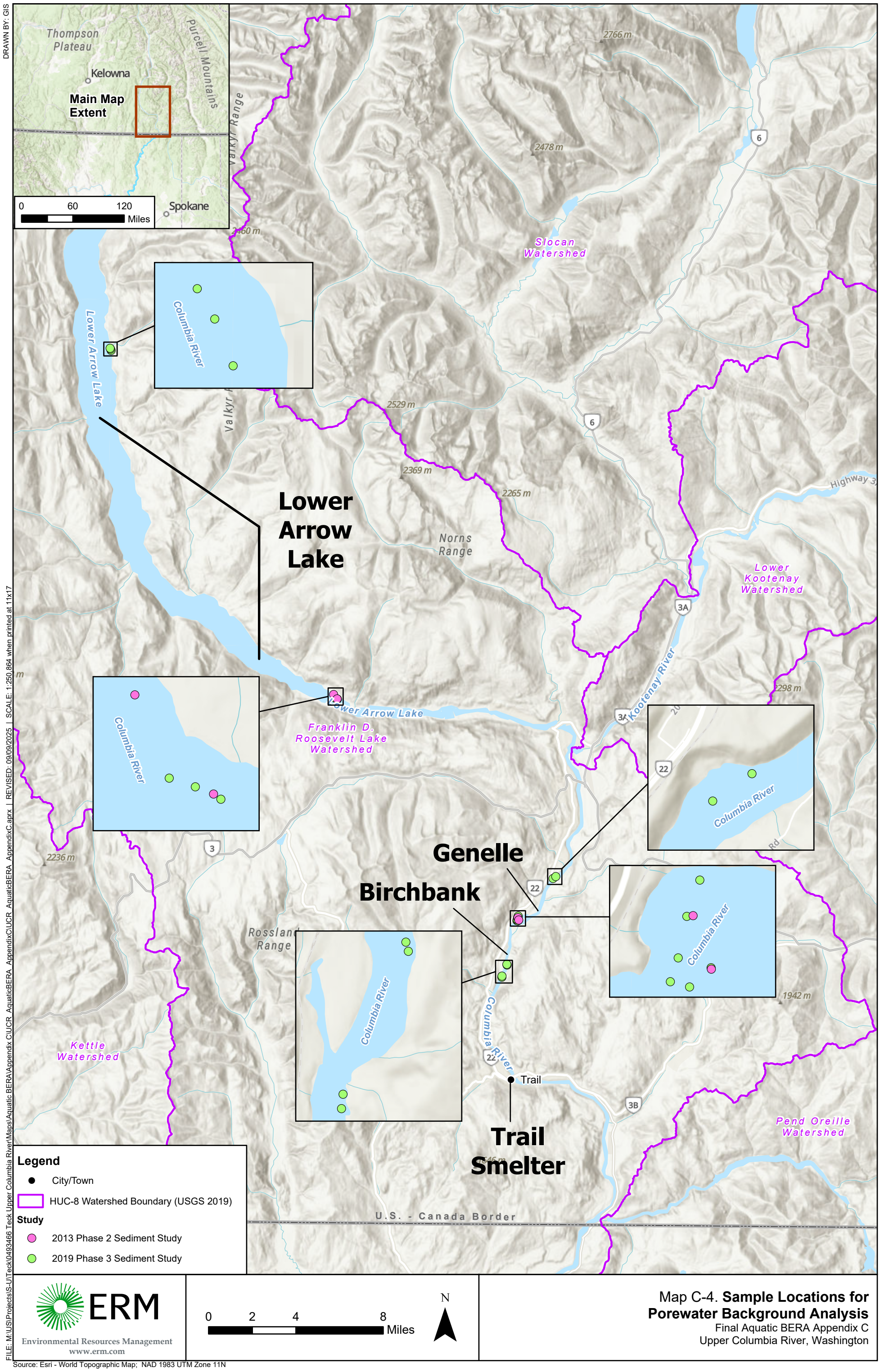
Map C-3l. **Sample Locations by Cluster Assignment for Sediment Background Analysis**
Final Aquatic BERA Appendix C
Upper Columbia River, Washington

ERM

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

DRAWN BY: GIS

FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix CIUCR_AquaticBERA_AppendixC.aprx | REVISED: 09/09/2025 | SCALE: 1:71,000 when printed at 11x17


Thompson Plateau
Kelowna
Main Map Extent
Purcell Mountains
Spokane
0 60 120 Miles
Valkyr Range
2766 m
2478 m
2460 m
Slocan Watershed
Columbia River
Lower Arrow Lake
2529 m
2369 m
2265 m
Norns Range
Lower Arrow Lake
Lower Kootenay Watershed
Kootenay River
2298 m
Franklin D. Roosevelt Lake Watershed
Columbia River
Columbia River
Rd
2236 m
Genelle
Birchbank
Rossland Range
Columbia River
Columbia River
Columbia River
1942 m
Kettle Watershed
Trail
Trail Smelter
Pend Oreille Watershed
U.S. - Canada Border
Highway 3
6
3
3A
22
3B
Legend
City/Town
HUC-8 Watershed Boundary (USGS 2019)
Study
2013 Phase 2 Sediment Study
2019 Phase 3 Sediment Study
ERM
Environmental Resources Management
www.erm.com
0 2 4 8 Miles
N
Map C-4. Sample Locations for Porewater Background Analysis
Final Aquatic BERA Appendix C
Upper Columbia River, Washington
Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N
DRAWN BY: GIS
FILE: M:\US\Projects\S-U\Teck\0493466 Teck Upper Columbia River\Maps\Aquatic BERA\Appendix C\UCR_AquaticBERA_AppendixC\UCR_AquaticBERA_AppendixC.aprx | REVISED: 09/09/2025 | SCALE: 1:250,864 when printed at 11x17

ATTACHMENT C1 FINAL TECHNICAL MEMORANDUM, ASSESSMENT OF BACKGROUND CONCENTRATIONS OF METALS AND METALLOIDS IN UPLAND SOILS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3123

SUPERFUND &
EMERGENCY
MANAGEMENT DIVISION

July 15, 2020

Kris McCaig
Teck American Incorporated
501 North Riverpoint Boulevard, Suite 300
Spokane, Washington 99202

VIA ELECTRONIC MAIL ONLY

Subject: *Revised Draft Final Technical Memorandum - Assessment of Background Concentrations of Metals and Metalloids in Upland Soils*, dated June 29, 2020

Dear Kris,

EPA has reviewed and approves the Draft Final Technical Memorandum – Assessment of Background Concentration of Metals and Metalloids in Upland Soils (6/29/2020). EPA appreciates Teck American Incorporated's (TAI) additional effort to revise the document in accordance with EPA's May 29, 2020 letter and analysis, and we look forward to receiving the final document.

This letter includes two attachments; Attachment 1 provides brief responses to TAI's July 7, 2020 letter, and Attachment 2 is an updated table that includes EPA's response to TAI's July 7, 2020 comments.

Please let me know if you have any questions or concerns.

Sincerely,

Kathryn S. Cerise

Kathryn Cerise
EPA Remedial Project Manager

cc: Jeffrey Johnson, U.S. Department of Interior
Cindy Marchand, Confederated Tribes of the Colville Reservation
Tamara Knudson, Spokane Tribe of Indians
John Roland, Washington Department of Ecology

Teck American Incorporated
501 North Riverpoint Boulevard, Suite 300
Spokane, WA USA 99202
+1 509 747 6111 Tel
www.teck.com

July 21, 2020

File No.: 01-773180-000

Ms. Kathryn Cerise
Project Manager, Office of Environmental Cleanup
U.S. Environmental Protection Agency, Region 10
1200 6th Avenue, Suite 155
Mail Code 12-D12-1
Seattle, WA 92101-3123

VIA ELECTRONIC MAIL ONLY

Subject: Upper Columbia River Remedial Investigation and Feasibility Study – Final Technical Memorandum – Assessment of Background Concentrations of Metals and Metalloids in Upland Soils (July 2020)

Dear Kathy:

On behalf of Teck American Incorporated (TAI) and further to the U.S. Environmental Protection Agency's (EPA's) approval email dated July 15, 2020, I am pleased to submit the above-referenced final technical memorandum. We wish to confirm that this final memorandum is available to download on the Upper Columbia River Remedial Investigation and Feasibility Study website (www.ucr-rifs.com).

Sincerely,
Teck American Incorporated



Denise Mills, LHG
Program Manager, Upper Columbia River

Enclosure (electronic only): *Final Technical Memorandum – Assessment of background concentrations of metals and metalloids in upland soils* (July 2020)

cc: Robert Tan, EPA, Seattle, WA, Enclosure
Andrea Latier, EPA, Seattle, WA, Enclosure Kay Morrison, U.S. EPA, Seattle, WA, Enclosure
Marilyn Gauthier, Jacobs, Portland, OR, Enclosure
Shaun Roark, Jacobs, Englewood, WO, Enclosure
John Roland, Department of Ecology, Spokane, WA, Enclosure
Dave McBride, Department of Health, Olympia, WA, Enclosure
Cindy Marchand, Confederated Tribes of the Colville Reservation, Nespelem, WA, Enclosure
Sheri Sears, Confederated Tribes of the Colville Reservation, Nespelem, WA, Enclosure
Whitney Fraser, Lodestone Environmental Consulting, LLC, Seattle, WA, Enclosure
Tamara Knudson, Spokane Tribe of Indians, Wellpinit, WA, Enclosure
Jeff Johnson, National Park Service, Spokane, WA, Enclosure
Julie Campbell, U.S. Fish & Wildlife Service, Spokane, WA, Enclosure
Dr. BJ Howerton, Bureau of Indian Affairs, Office of Justice Services, Reston, VA, Enclosure
Dan Foster, U.S. National Park Service, Coulee Dam, WA Enclosure
Dr. Carrie Rickwood, Natural Resources Canada, CANMET Mining and Mineral Sciences Laboratories Ecosystem Risk Management Program, Ottawa, ON, Canada, Enclosure
Gary Diamond, SRC, Akron, NY, Enclosure
Dr. Anne Fairbrother, Exponent, Bellevue, WA, Enclosure
Dr. Jennifer Holder, ERM West, Carpinteria, CA, Enclosure
Kris McCaig, Teck American Incorporated, Spokane, WA
Rob Orr, Teck American Incorporated, Spokane, WA
Cristy Kessel, Teck American Incorporated, Spokane, WA

TECHNICAL MEMORANDUM — FINAL

TO:	Kris McCaig, Manager, Environmental and Public Affairs, and Denise Mills, Program Manager, Upper Columbia River, Teck American Incorporated
FROM:	Exponent and ERM West, Inc.
DATE:	July 21, 2020
PROJECT:	Upper Columbia River RI/FS
SUBJECT:	Assessment of background concentrations of metals and metalloids in upland soils

1 Introduction

This memorandum presents the revised results of the upland soils natural background assessment and an exploratory evaluation of area background performed for the Upper Columbia River (UCR) Site (hereafter the Site[1]). The results present background threshold values (BTVs) for metals and metalloids[2] that estimate natural background in and around the Site. The background assessment was conducted according to the U.S. Environmental Protection Agency (EPA)-approved data quality objectives (DQOs) (TAI 2018b; USEPA 2018) based in part on EPA's level of effort (LOE) memorandum regarding the assessment and estimation of background elemental concentrations in upland soils from the UCR (USEPA 2016a). In addition, this technical memorandum incorporates comments by EPA related to previous versions of this assessment (USEPA 2019, 2020a,b,c). The results will be used to inform the UCR remedial investigation and feasibility study (RI/FS) and baseline ecological risk assessment (BERA) being conducted by Teck American Incorporated (TAI), and

[1] The UCR Site as defined within the June 2, 2006 Settlement Agreement (USEPA 2006a) is the areal extent of hazardous substances contamination within the United States in or adjacent to the Upper Columbia River, including the Franklin D. Roosevelt Lake, from the U.S.-Canada border to the Grand Coulee Dam, and those areas in proximity to the contamination that are suitable and necessary for implementation of response actions.

[2] The metals and metalloids assessed will include those listed in Table 2-1 of the Upper Columbia River Soil Study (TAI 2015b), which are aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc. Thus, in this document "metals and metalloids" refers only to this list of elements. These metals and metalloids were identified as chemicals of interest for the referenced soil study and were considered in the assessment of natural background soil concentrations.

the site-wide human health risk assessment (HHRA) being conducted by EPA (USEPA 2006a, 2016b).

The natural background assessment screened a large dataset from multiples sources (see Section 2.3.1 for details). After exclusionary criteria were applied, the data were assessed for consistent and representative soil measurements comparable to the soil data developed for use in the RI/FS. The background dataset that was initially developed following the data screening and selection criteria in the EPA-approved final DQOs included samples collected from 23 locations for the UCR Upland Soil Study (TAI 2015b). This dataset was deemed insufficient in size and geographic distribution to characterize background soil conditions in the study area. Thus, at EPA's request, the exclusionary criteria were relaxed to increase the number of samples included and the geographical coverage (USEPA 2019). This included merging results into one dataset regardless of the method of sample preparation and analysis. Subsequently, EPA requested that results be segregated by method for comparability to like results (USEPA 2020a,b). In comments provided to TAI on May 29, 2020, EPA required certain additional results be excluded from the BTV dataset based on multivariate analyses provided with their comments (USEPA 2020c). These deviations from the DQOs are described in the following sections.

An exploratory assessment of area background (e.g., an evaluation of anthropogenic influences on soil chemistry not related to the smelter in Trail, BC) was also conducted. Some of the exclusion criteria that were applied to the background dataset for estimation of natural background were designed to eliminate samples associated with anthropogenic activities and features and therefore, resulted in screening out data useful for the area background assessment. Metal and metalloid data plus added location-based information about anthropogenic sources were used to derive the exploratory area background dataset.

Figures and tables are included after the main text unless presented as an insert.

2 Natural Background Assessment

The primary objective of the natural background assessment was to ascertain the natural background soil concentrations as defined by Model Toxics Control Act (MTCA; Washington Administrative Code [WAC] 173-340-200[3]) and EPA (USEPA 2002a[4]). Results will be used in the RI to identify those areas where measured soil concentrations of the chemicals of potential concern (COPC) are no higher than natural background. This information will be used to provide context in the BERA and HHRA.

2.1 Study Background

In 2016, EPA issued an LOE memorandum to TAI (USEPA 2016a), which outlined an approach for compiling a background dataset from preexisting data sources and included DQO Steps 1, 2, and 3 of the EPA's DQO process (USEPA 2006b). In the memorandum, EPA evaluated 13 studies considered usable for compiling a background dataset for the Site. EPA's primary criteria were that all samples should have a known location (i.e., known spatial coordinates and depth) that is near the Site and were collected in areas outside the following influences:

- The 100-year floodplain
- The 1931 "zone of sulfur dioxide injury" described by Scheffer and Hedgcock (1955; referred to herein as the "1931 SO_2 plume area")
- Areas disturbed by human activity

[3] WAC 173-340-200:

"Natural background" means the concentration of hazardous substance consistently present in the environment that has not been influenced by localized human activities. For example, several metals and radionuclides naturally occur in the bedrock, sediments, and soils of Washington state due solely to the geologic processes that formed these materials and the concentration of these hazardous substances would be considered natural background. Also, low concentrations of some particularly persistent organic compounds such as polychlorinated biphenyls (PCBs) can be found in surficial soils and sediment throughout much of the state due to global distribution of these hazardous substances. These low concentrations would be considered natural background. Similarly, concentrations of various radionuclides that are present at low concentrations throughout the state due to global distribution of fallout from bomb testing and nuclear accidents would be considered natural background.

"Area background" means the concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site.

[4] USEPA (2002a) defines background as "constituents or locations that are not influenced by the releases from a site, and is usually described as naturally occurring or anthropogenic (EPA, 1989; EPA, 1995a):

1) *Anthropogenic* – natural and human-made substances present in the environment as a result of human activities (not specifically related to the CERCLA release in question); and,

2) *Naturally occurring* – substances present in the environment in forms that have not been influenced by human activity."

- Areas affected by natural processes such as landslides that may expose lithic materials that are not representative of surficial soils.

Data that met these initial screening criteria were evaluated further by EPA with respect to sample collection methods, chemical analysis methods, and detection limits.

The DQOs for this study (TAI 2018b) expanded upon the LOE memorandum (USEPA 2016a) to compile a dataset of soil metal and metalloid concentrations in surface and near-surface soils from northeast Washington State that is of sufficient data quality to calculate summary statistics for use in the BERA and HHRA. Methods for defining natural background concentrations are provided in WAC 173-340-709, which stipulates that samples for background determination should "have the same basic characteristics as the [soil] of concern at the site."

2.2 Study Design

For this study, EPA's seven-step DQO process (USEPA 2006b) was used to determine the type, quantity, and quality of data needed to achieve study goals and establish performance and acceptance criteria for the data (TAI 2018b). EPA informed TAI on October 23, 2018, that it had no further comments on the DQO document (USEPA 2018; included in Attachment A). The DQOs (TAI 2018b) along with the associated responses to EPA's consolidated comments (RTC) (TAI 2018a) are also included in this memorandum in Attachment A.

The approach for assessing background metals concentrations described in the DQOs and implemented for this study is generally consistent with a study completed independently by the Washington State Department of Ecology (Ecology 2019) for the same area, whereby existing data were compiled, filtered, and analyzed to calculate background values. However, there are several significant differences between the Ecology (2019) study and this study. These differences include, but are not limited to, the establishment of DQOs for study planning following EPA's seven-step DQO process (USEPA 2006b) and the statistical methods used for calculating background values.

2.3 Background Dataset Assembly

As presented in the DQOs, assembly and screening of the data considered for the natural background assessment was done in three stages or "tiers," which are described below and in the flow chart shown in Figure 1.

2.3.1 Data Sources Considered

The data sources considered included the following:[5,6]

- Soils data from studies identified in EPA's LOE memorandum (USEPA 2016a)
- Studies referenced in other TAI UCR reports, as well as studies prepared for Teck Metals' Trail operations
- UCR RI/FS database
- Soil and sediment samples from the National Uranium Resource Evaluation (NURE)-Hydrogeochemical and Stream Sediment Reconnaissance (HSSR) dataset (Smith 2006; USGS 2004)[7,8]
- U.S. Geological Survey (USGS) databases and datasets including the National Geochemical Database (USGS 2016), the National Geochemical Survey (USGS 2008b), and the North American Soil Geochemical Landscapes Project (Smith et al. 2013).

2.3.2 Study Area

The study area is defined by 11 Water Resource Inventory Areas (WRIAs) (TAI 2018b). These include the following:

- WRIA 49—Okanogan
- WRIA 51—Nespelem
- WRIA 52—Sanpoil
- WRIA 53—Lower Lake Roosevelt
- WRIA 54—Lower Spokane

---

[5] As discussed in the RTC (TAI 2018a), the Canadian datasets were removed from consideration for the background assessment (see Attachment A, Specific Comment 2) primarily because the 1931 SO_2 plume area as defined by Scheffer and Hedgcock (1955), an important exclusionary criterion, is not mapped north of the U.S.-Canada border.

[6] Although the DQOs specified that data retrieved from the Ecology Environmental Information Management System (EIM) would be considered, these data are not included in this revised analysis over concerns by EPA (2019) that the data may lack the appropriate level of quality assurance for inclusion.

[7] NURE-HSSR sediments, whether from wet or dry streams, were considered as requested by EPA (2018), in addition to soil samples.

[8] The NURE-HSSR dataset includes numerous results determined by irradiated neutron activation analysis (INAA); however, only the results from Savannah River Laboratories were considered in this assessment. INAA data from Lawrence Livermore Laboratory were not included because previous work by Church (2010) concluded that the results for arsenic, cadmium, copper, mercury, lead, and zinc were not usable for background concentration determinations.

- WRIA 55—Little Spokane
- WRIA 58—Middle Lake Roosevelt
- WRIA 59—Colville
- WRIA 60—Kettle
- WRIA 61—Upper Lake Roosevelt
- WRIA 62—Pend Oreille

It is important to recognize that WRIAs are administrative areas designated by Ecology for the management of water resources and are based on watershed and drainage characteristics. Their boundaries do not consider the physical, chemical, geological, and other characteristics necessary to evaluate upland soil background conditions. A "landscape" approach that takes into consideration multiple geomorphological and geochemical factors present in the UCR area will be appropriate for future geographic stratification of the BTVs for use in the RI/FS.

2.3.3 Elements Considered

As discussed in the DQOs (TAI 2018b), this study includes the metals and metalloids[2,9] that were agreed upon by TAI and EPA as those that would be quantified in the Upland Soil Sampling Quality Assurance Project Plan (TAI 2014) for risk determination. Potassium, magnesium, calcium, and sodium were initially retained for this analysis because cation exchange capacity (CEC) may be estimated using these elements and soil pH (TAI 2018a,b). However, these elements in the datasets reviewed for this study were analyzed by methods that are not appropriate for CEC calculation because either the digestion procedures involved strong acids or the samples were analyzed for the total-element composition of the sample (e.g., irradiated neutron activation analysis; INAA). Thus, potassium, magnesium, calcium, and sodium are not included in the BTV calculations.

2.3.4 The Tier I Dataset

Using the data sources listed above, the Tier I dataset includes soil and NURE-HSSR soil and sediment samples collected from the designated WRIAs at depths of 24 in. or less with results for any of the metals and metalloids.[10] Table 1 includes a list of the studies that make up the Tier I dataset. The table also contains the number of sample locations and the years of sample collection. These locations are shown in Figure 2.

Additional descriptive data were added to the Tier I dataset based on location as discussed in the DQOs. These included the following:

- WRIA designation (Ecology 2017)

[9] Molybdenum was inadvertently omitted from the list of metals and metalloids to be evaluated in this background assessment. It has since been added to the list provided in Section 2.3.8 and is included in the BTV calculations.

[10] For many samples, only some of the metals and metalloids were analyzed.

- Location relative to the 1931 SO_2 plume area described in Scheffer and Hedgcock (1955)
- Land use code (Ecology 2010)
- Distance to the following features
  - 100-year floodplain (FEMA 2017)
  - Nearest road (USGS 2017b)
  - Nearest railway (USGS 2017b)
  - Nearest landfill (USGS 2008a)
  - Nearest landslide (WADNR 2017)
  - Mines/mills categorized by the Mineral Resources Data System (MRDS) as producer, past producer, plant, and unknown along with the name of the feature and the associated commodity codes[11] (USGS 2005)
- NURE-HSSR contamination code referred to as "CONTAMC" in the publicly available NURE-HSSR dataset[12]
- Geologic unit (Ludington et al. 2007)
- Soil designation (map units from STATSGO; USDA 2016, 2019)
- Hydrologic units (USGS 2017a) including the name and codes (HUC6, HUC8, HUC10, HUC12), plus distances to the following:
  - Nearest drainage feature
  - Nearest upgradient mineralized area and mill located in the same drainage based on the MRDS classifications included above
  - Nearest upgradient road, railway, landfill, and landslide located in the same drainage.

The distances between samples and nearest features of interest were calculated in ArcGIS by joining sample locations with the data layers containing locations of features of interest. Each sample location was assigned a straight-line distance representing how close that location was to the nearest feature in the corresponding layer. The geospatial platform used for determining the nearest upgradient feature was ArcGIS 10.5 and its Spatial Analyst extension using the "Flow Length" function in the Hydrology module. First, a flow direction raster was created from digital elevation model (DEM) using the "Flow Direction" tool. The flow direction raster shows the direction of flow out of each cell. Second, an upstream flow length raster was created using the "Flow Length" tool, which calculates the upslope distance along the flow path, from each cell to the upstream features. Lastly, the flow length to upstream features for each sample was extracted from the upstream flow length raster based on its spatial location.

[11] MRDS locations with the following metal and metalloid commodity codes were included in the screening: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc.

[12] https://mrdata.usgs.gov/nure/sediment/

2.3.5 The Tier II Dataset

Using the Tier I dataset plus added location-based information, the Tier II criteria described in the DQOs (TAI 2018b Table 1; provided in Attachment A) were applied to screen out samples potentially impacted by anthropogenic activity with several exceptions. At the request of EPA (2019), the screening criteria were relaxed to expand the dataset to consider samples regardless of the land use code associated with their location. Because the contamination code associated with the NURE-HSSR soil and sediment samples is somewhat similar to a land use designation (e.g., grazing, farming, mining), this screening criterion[13] was also removed. Table 1 shows the number of sample locations remaining after the Tier II screening; locations are mapped in Figure 3. Sample locations screened out and the rationale for their removal are shown in Table 2.

The samples retained for additional assessment met the following criteria and are referred to as the Tier IIA dataset in the flow chart (Figure 1):

- Outside 1931 SO_2 plume area
- Distance to the nearest
  - Road ≥50 m
  - Railway ≥50 m
  - Landfill ≥500 m
  - Mine/Mill as describe above ≥500 m
  - Landslide—Outside footprint (>0 m)
  - 100-year floodplain—Outside (>0 m)

Straight-line distances were used for the Tier II screening because the potential sources of contamination to be avoided (i.e., roads, railways, landfills, mines, and mills) all include not only surface water runoff, but also fugitive dust.

After applying the above screening criteria, replicate samples were averaged and some additional exclusions were made. The resulting dataset is referred to as the Tier IIB dataset (see Table 1):

- Multiple analyses of the same sample—A subset of the NURE-HSSR samples from the Study "NURE Seds" underwent reanalysis decades after the original collection date (Church et al. 2008 [Study "CHURC08A] and USGS 2008b [Study "geochem-fU53"][14]). In order to have one set of results per sample, the reanalysis results, with the exception of silver, were retained over

[13] The DQOs only allowed the NURE-HSSR soils and sediments with a contamination code that was either "NONE", "GRAZING", or not populated (i.e., null).

[14] Study "CHURC08A" has 44 samples and Study "geochem-fu53" has 63 samples in the Tier IIA dataset, respectively. One sample (DSOR424S01) was reanalyzed in both studies. The CHURC08A results were given priority because the concentrations were lower.

the older NURE-HSSR results from the 1970s as the former include more of the metals and metalloids of interest and the analytical techniques are well documented. The older silver results were retained because the detection limit was lower.

- Additional review of Tier IIA assessments
  - Ecology (2013b) samples in proximity to the Van Stone Mine—During review of the post-Tier IIA screening, a number of samples collected from mine waste and impacted areas made it past the MRDS screening. After reviewing the location samples near the mine against information included in Ecology (2013b; Figures 5 through 7), an additional 72 samples were removed from background based on proximity to mine waste and roads (Ecology 2013b, Study "HARTC13C" 70 samples; USEPA 2002c, Study "USEPA2001Mines/Mills" 2 samples).
  - USEPA (2002c) and Church et al. (2008) samples in proximity to other mines—The locations of samples from Studies "USEPA2001Mines/Mills" and "CHURC08A" underwent supplemental review based on elevated lead, zinc, or arsenic results for samples just beyond the 500 m setback (e.g., lead, zinc, and arsenic concentrations as high as 5,000 mg/kg, 15,000 mg/kg, and 182 mg/kg, respectively). The review indicated that although the samples were over 500 m away from the MRDS points designated for nearby mines, the samples were collected near what appear to be tailings areas. Thus, 14 samples in the proximity of the Sierra Zinc, Pend Oreille, Yellowhead, and Midnite Mines were excluded.
  - Remove replicate results for arsenic from USGS (2008b), Study "geochem-fU53". (Results by atomic adsorption spectrometry [AAS] had lower detection limits and were retained over inductively coupled plasma [ICP]-atomic emission spectrometry [AES] results.)

2.3.6 The Tier IIIA Dataset

As stated in the DQOs, additional information on samples in the Tier IIB dataset were reviewed and supplemental data added as needed to create the Tier IIIA dataset.

These include the following:

- Depth interval
- Preparation for analysis (e.g., digestion method)
- Analytical method
- Geology and parent soil material

- Sample type (e.g., grab, composite, incremental soil composite)
- Particle size (e.g., <2 mm, <150 μm)

Of these, only the depth interval and particle size are exclusionary criteria established in the DQOs. At this point, the seven samples collected from depths greater than 6 in. were removed from the dataset because the number was deemed insufficient to justify relaxing the depth interval considered. All samples in this dataset met the particle size criterion. This group of samples and results are referred to as the Tier IIIA dataset, which was then reviewed to evaluate suitability as a single dataset. Potential influence of geology and soil parent material are important factors to assess if specific data are representative of background conditions in the upland soil study area. Although these factors were not used to screen in or out samples and results in the Tier IIIA dataset, it may be necessary to consider these factors as part of a refinement of the background dataset as part of the site characterization that will be included in the RI report. These factors are discussed further in Section 2.3.7.1 of this memorandum.

2.3.6.1 Assessing Methods of Sample Preparation and Analysis

The methods of sample preparation and analysis were researched for each of the remaining studies, and generally fit into four categories: total metals, partial digestion (also known as total-recoverable), loss on ignition (LOI) plus digestion (Wells 2015), and mercury. These distinctions are meaningful because each has the potential to extract a different portion of the sample depending on particle size and the mineral phases in the soil (Fishman and Friedman 1989; Ames and Prych 1995; USEPA 1996; Smith et al. 2009). These sample preparation groupings are shown in Table 3 for the Tier IIIA studies along with the number of results in each category. Locations for all metal and metalloid results are shown by study in Figures 4a through 4t.

The total metals category includes methods that aim to measure the entire concentration of an element in a sample, which includes biologically available metals as well as the full mineral content of the soil (i.e., mineral grains). These methods include INAA, which was used for many of the NURE-HSSR soil and sediment samples,[15] and "total digestion", which was also used for NURE-HSSR samples and the USGS studies Smith (2006), USGS (2008b), and Smith et al. (2013). The total digestion methods use strong acids such as hydrofluoric and perchloric acids to achieve a high percent recovery for an element (95 percent; Ames and Prych 1995).

The partial digestion category includes methods designed to liberate "most material bound by surficial coatings on soil particles but removes less than 95 percent of the metals from the mineral matrix" (Ames and Prych 1995; Smith et al. 2009). This includes EPA Method 3050 (USEPA 1996). Although partial digestion methods also use strong acids, they may not achieve the high recoveries seen with total digestion methods. Wells (2015) is unique in that the volatile portion of the sample was measured by LOI before the sample was digested by microwave

[15] Elements by INAA included only aluminum, iron, manganese, sodium, and vanadium.

assisted nitric acid digestion. By oxidizing the sample before digestion, the dissolution properties of the samples are modified.

Additional review of sample preparation methods suggests that some samples underwent additional treatment before dissolution. This includes the reanalysis of archived NURE samples in Church et al. (2008; Study "CHURC08A"). Further examination of how samples were prepared for the NURE-HSSR program shows samples prepared for chemical analysis at Savannah River Laboratory were not only sieved to -100 mesh (<150 μm) but were also ground to -500 mesh in a ball mill (Grimes 1984; Figure 3.12). Whether the reanalyzed samples were from an unground archived split or a finer -500 mesh split is unknown. The latter finer sample would facilitate sample dissolution because of the increased surface area of all portions of the sample (matrix and mineral content).

Metal and metalloid concentrations are shown in boxplots in Attachment B. Results were grouped into the sample preparation categories: INAA, total digestion, LOI+digestion, and partial digestion. Incidentally, the total digestion methods are used on almost all samples with particle size <150 μm;[16] while the partial digestion methods were a mixture of samples with particle sizes <2 mm and <150 μm. There are variations in concentrations between methods and size fraction (see Attachment B for statistical analyses); thus, the results were segregated by total metals, partial digestion, and mercury. LOI+digestion results were excluded because they are not comparable to the other studies considered. The results retained for the Tier IIIB dataset include samples analyzed by INAA, AAS, ICP-AES, and ICP-mass spectrometry (MS), which are considered equivalent methods.

2.3.6.2 Assessing Sample Type

The Tier IIIA dataset has three general sample types: grab (i.e., independent, discrete), composite, and incremental composite samples (ICS). Grab samples by definition represent a point location. Composite samples in the Tier IIIA dataset generally represent a composite of five or more samples collected from areas of varying size. In contrast, the ICS method (ITRC 2012) used for the 2014 Upland Soil Study (TAI 2015b, Study "Teck_2014_UplandSoil") consisted of 30 subsamples per decision unit, which were approximately 25 acres in size. The screened dataset at this stage includes 15 grab samples from three studies, 23 areas sampled by ICS for the 2014 Upland Soil Study, and over 3,200 composite sample locations (Table 4). Each of the sample types represents background concentrations on a different spatial scale, but in combination characterize concentrations throughout the study area.

[16] All but six of the samples for total digestion represent the <150 μm size fraction.

2.3.6.3 Assessing Particle Size

The Tier IIIA dataset includes samples sieved to <2 mm and <150 μm which are most representative for ecological and human health exposures, respectively. There was no need for further exclusions based on particle size.

The 2014 Upland Soil Study measured metals and metalloids for samples from both size fractions (<2 mm and <149 μm), many from the same location (Table 4). To avoid over-weighting these locations, the <2 mm samples were retained in the Tier IIIB dataset and used for derivation of BTVs (i.e., <149 μm results from 2014 Upland Soil Study are not used in this assessment).

2.3.7 Geospatial Consistency of the Tier IIIB Dataset

Geospatial sample characteristics merged with the measured metal and metalloid concentrations provide the starting dataset for evaluations to determine consistent groups of samples (i.e., populations) for characterizing BTVs for each element. The original objective of statistical comparisons based on geospatial classifications was to identify groups of samples that represent significantly different conditions that would justify separate risk evaluations for sub-areas of the Site. The Tier IIIB dataset consists of samples from two particle sizes, multiple sample types, and various preparation and analysis methods, in addition to other differences in sampling between studies. The screened background data were evaluated for differences between assessment variables as stated in the DQOs (TAI 2018b) as follows:

- Maps of metal concentrations with geospatial classifications to visually assess variability across the region.
- Analysis of variance (ANOVA) based on metal concentrations to determine significant differences between geospatial classifications.

2.3.7.1 Spatial Variability

Maps showing sample concentrations[17] of each metal and metalloid (Figures 5a through 5t) demonstrate the spatial variability in concentrations across the study area. This variability is likely the result of several confounding factors that makes the interpretation of metals concentrations in surface soils in the areas surrounding the UCR challenging. The overemphasis of a single factor (e.g., particulate deposition from smelter emissions) to the occurrence of metals in a specific part of the UCR Site may lead to an inaccurate assessment of background conditions that are relevant to the upland soil dataset.

Geologic formations enriched in lead and zinc, in mineable concentrations, are present in the UCR area, and are often associated with calcareous materials, such as limestone and dolomite.

[17] This subset of metals is provided for consistency with the earlier maps demonstrating sampling locations.

The occurrence of formations enriched in lead and zinc is reported in Lovering (1976), not as uniform occurrences in country rock, but in mineralized zones where the emplacement of lead has occurred regionally. These formations are prevalent in the Northport and Metaline mining districts, located in Stevens County and Pend Oreille County, respectively, and are found throughout the northeastern portion of WRIA 61 and extending north into Canada. This area is part of the principal lead deposits in the continental United States and along with southeastern British Columbia, Canada, and northern Idaho comprise "one of the great lead-zinc provinces of the world" (Lovering 1976; Weissenborn et al. 1970, p. 3). Furthermore, Mills (1977) identified 98 mines and prospects in Stevens County, mostly within carbonate rocks associated with the Kootenay Arc that extends from southern British Columbia into northeastern Washington, indicating widespread occurrences of bedrock assemblages in the UCR area. An example of this is the Metaline Limestone of Middle Cambrian age, which is the host for all stratiform lead and zinc in in Stevens County (Mills 1977). These lead-zinc deposits transition in eastern Stevens County and into Pend Oreille County, to occurrences that are associated with more meta-granitic deposits (Jenkins 1924).

Quaternary surface deposits in the UCR have likely been partially derived from weathered bedrock formations and transported by glacial and hydraulic events and are therefore widely distributed across the UCR Site and likely influence local natural background concentrations. Therefore, soil parent material and underlying bedrock are significant factors influencing the natural background level of trace metals in the UCR area, specifically in Stevens County, where high concentrations of lead, zinc, and other associated metals have been historically observed in this area (see Figure 6). Consideration of these factors is beyond the scope of this memorandum, however, consideration of geologic and geochemical factors may be warranted as part of a future refinement of the background assessment and for use in the RI. Additional evaluation of soil compositions may be presented in the RI report if necessary to support a refinement of the background assessment.

Consideration of bedrock geology as an explanatory variable for elevated soil metals concentrations in a specific area is consistent with the approach used by Ecology (2019), where elevated chromium concentrations in WRIA 60 are attributed to the presence of chromium-bearing ultramafic mineralization within tributaries of this WRIA. In this case, chromium results from WRIA 60 were not eliminated. Instead, the authors state that "caution is advised for chromium background range applications, as the maximum value in particular may be best reserved to WRIA 60 only" (Ecology 2019, p. 49).

2.3.7.2 Analysis of Variance

Formal statistical comparisons of differences among assessment variables (sample preparation and analysis methods, sample type, particle size, WRIA, land use, and geology) using ANOVA were confounded by the multiple aspects that differ between studies. Attributing differences to one of the assessment variables is misguided and segregating by study does not provide the desired geographic coverage of the study area (see Attachment B for ANOVA by sample preparation and analysis method). Table 4 indicates the number of sampling locations by

particle size, sample type, and WRIA. This dataset includes samples from 20 land use types, 43 geology classifications, and 62 soil map units. The imbalanced distribution of samples between categories, along with other differences between studies, confounds interpretation of ANOVA results, therefore no formal statistical comparisons were evaluated.

2.3.7.3 Upgradient Features

As stated in the DQOs, distance to various upgradient features was added to the dataset to help in the assessment of impacts from upgradient runoff. For the Tier IIIB dataset, none of the sample locations are in the flow path of a mine or mill, or landfill as described in Section 2.3.5. Only four locations are downgradient from railways (one almost 3 km away), while over 360 locations are downgradient from roads (most over 100 m away). However, the setback of 50 m for these is likely sufficient to avoid contamination without over screening samples for the assessment. As such, these features are unlikely to affect downgradient samples retained for the final natural background dataset.

2.3.8 The Tier IIIC Dataset

In their May 29, 2020 comments, EPA required additional partial digestion sample results be removed from the Tier IIIB dataset; no further refinements were required for the total digestion and mercury results. The exclusions are based on multivariate analyses conducted by EPA that used partial digestion sample results for selected metals and metalloids[18] (see Tables 3 and 4 regarding samples from Church et al. 2008[19]; Ecology 1994, 2013b; USEPA 2002c; TAI 2015b[20], Wells 2015). EPA's analyses also included air deposition area (ADA) sample results, from the 2014 Upland Soil study, located within the 1931 SO_2 plume area as determined by EPA (USEPA 2020c, Attachment 1). By applying this screening step, additional samples beyond the 1931 SO_2 plume area were removed, which included all partial digestion results for samples located in WRIA 61 plus two samples from other WRIAs.[21]

2.4 Background Threshold Values

BTVs were calculated as one-sided 95 percent upper confidence limit on the 95th percentiles, or 95/95 upper tolerance limits (UTLs), of the Tier IIIC dataset using ProUCL 5.1 (USEPA 2015a,b), as specified in the DQOs (TAI 2018b). Quantile-Quantile (QQ) plots of measured or

[18] Metals and metalloids included were aluminum, arsenic, beryllium, cadmium, chromium, copper, iron, lead, manganese, nickel, and zinc.

[19] EPA's analyses also include Sample DSOR460S1, which was excluded from Tables 3 and 4 because of its proximity to the Midnite Mine (i.e., total number of samples EPA used from Church et al. [2008] was 44).

[20] Particle size less than 2 mm (i.e., 23 samples outside the 1931 SO_2 plume area).

[21] For WRIA 61, this includes 17 samples from the 2014 Upland Soil Study ("Teck_2014_UplandSoil" samples; TAI 2015b) and 8 samples from the Van Stone Mine remedial investigation ("HARTC13C" samples; Ecology 2013b). The additional samples are Sample RZAH028S1 located in WRIA 54 (Church et al. 2008) and Sample MJ0FL1 located in WRIA 62 (USEPA 2002c).

log-transformed metal concentrations, depending on distributional assessment, were used to identify anomalous high concentrations that would overly influence the BTV in conjunction with formal outlier tests (i.e., Dixon or Rosner tests). Input data, output from ProUCL, and QQ-plots are provided in Attachment C: Attachment C-1 provides these materials based on the total metals results, Attachment C-2 based on the partial digestion results, and Attachment C-3 based on the mercury results. Each attachment includes summary statistics, goodness-of-fit distributional assessments, results of the outlier assessments, and the BTV with the calculation method for each metal and metalloid.

Table 5 summarizes the BTVs derived for each metal and metalloid for the total metals, partial digestion, and mercury results. BTVs with and without identified outliers are included in the table. An additional BTV for arsenic is included that reflects exclusion of five samples identified by EPA based on their multivariate analyses (USEPA 2020c, Attachment 1). As discussed in Section 2.3.7.1, the background dataset is complex. Therefore, the initial assessment of the contribution of natural background will be assessed using the BTVs presented in Table 5 that were derived from the Tier IIIC dataset. Recognizing the uncertainty in these BTV estimates, a refinement that takes into consideration the numerous physical, chemical, and geological factors present in the UCR area will be completed, if necessary, during preparation of the site characterization and RI reports. Confounding factors such as contributions from soil material that is naturally enriched with metals, spatial variability of aerial deposition (due to meteorological conditions, barriers to dispersal such as topography, slope orientation, and distance from area and point sources) may be used to identify data with attributes that indicate they are appropriate for the determination of refined background values and should be incorporated into the background dataset.

3 Exploratory Area Background Evaluation

The previous sections describe the analysis conducted to establish natural soil background concentrations for use in the RI/FS and risk assessments. As defined above and under MTCA (WAC 173-340-200), “natural background means the concentrations of hazardous substances consistently present in the environment that have not been influenced by localized human activities.” However, in addition to natural background, the RI and the BERA require an evaluation of non-site related anthropogenic influences on soil chemistry, i.e., area background. Under MTCA, “Area background means the concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site, which are the result of human activities unrelated to releases from that site.” Evidence for area background is a correlation between non-site-related anthropogenic sources of metals and metalloids and local or regional background concentrations. If a correlation exists, the magnitude and spatial distribution of area background can be determined.

The first step in the exploratory area background evaluation was to develop a preliminary understanding of the potential for anthropogenic features and/or land use to influence area background soil metals concentrations. Figure 7 includes a map showing the 1931 SO_2 plume

area that established the boundary of the 2014 Upland Soil Study (TAI 2015b). This figure also shows the distribution of land use classifications (e.g., residential, manufacturing, mining, agriculture, etc.) and presence of anthropogenic features (e.g., active and inactive mines, mills, and smelters; roads; and railways) within and in the immediate vicinity of the 1931 SO_2 plume area. Based on Figure 7, the following observations were made:

- Land Use Classification
  - Land use inside and outside of the 1931 SO_2 plume area is primarily classified as undeveloped or public/private forest.
  - Residential and agricultural land uses are also represented.
  - Manufacturing and retail land uses are represented less frequently than residential or agricultural lands and are located primarily within or adjacent to the nearby towns of Colville and Kettle Falls.
  - The mining land use is represented in one location in the northeast corner of Figure 7 that appears to be associated with the inactive Anderson Calhoun Mine/Mill.
- Anthropogenic Features
  - Despite the infrequent occurrence of the mining land-use classification, there are a number of active and inactive mines, mills, and smelters inside and outside of the 1931 SO_2 plume area (e.g., Last Chance Mine & Mill, Young America Mine & Mill, etc.).
  - There are several secondary roads inside and outside the 1931 SO_2 plume area, including Highway 25, which runs parallel to the UCR directly down the middle of the 1931 SO_2 plume area. Highways 20 and 395 are also present within the immediate vicinity of the 1931 SO_2 plume area.
  - There are pervasive local paved and unpaved roads inside and outside the 1931 SO_2 plume area.
  - There is a railway that runs parallel to the UCR and Highway 25 directly down the middle of the 1931 SO_2 plume area, and another railway that runs parallel to Highway 395 to the west of the 1931 SO_2 plume area.

The presence of anthropogenic land uses (e.g., residential, agricultural) coupled with the numerous active and inactive anthropogenic features within and immediately adjacent to the 1931 SO_2 plume area strongly suggest that current and/or historical anthropogenic activities may have influenced area background soil metals and metalloids concentrations. An exploratory evaluation of the factors that may influence area background is summarized below.

3.1 Area Background Dataset

The Tier I dataset plus added location-based information described in Section 2.3.4 was used to derive the exploratory area background dataset. Many of the Tier II exclusion criteria that were applied to the natural background dataset were designed to eliminate samples associated with anthropogenic activities and features. As the goal of the area background evaluation is to characterize the effects of anthropogenic activities and features, most of the Tier II exclusions were not applied to the exploratory area background dataset.

Although the analytical and digestion methods (i.e., samples prepared using total digestion versus partial digestion methods) may bias the results, due to the large number of samples, spatial coverage, and consistent sample preparation and analytical methods within the NURE-HSSR dataset, it is useful for examining spatial correlation between metals and metalloids concentrations and potential anthropogenic sources. Additionally, the NURE-HSSR samples were collected between 1977 and 1979, which may be before more recent and current anthropogenic sources were present, and this will be considered when interpreting the NURE-HSSR results relative to specific anthropogenic features.

3.2 Example of Anthropogenic Influences on Soil Metals and Metalloids Concentrations

The exploratory area background evaluation included an assessment of the relationship between soil metals and metalloids concentrations and proximity to anthropogenic features. An example of this preliminary analysis focused on the proximity of inactive mines related to soil metals and metalloids concentrations. It was assumed that if inactive mines contribute to elevated soil metals and metalloids concentrations, then concentrations would be highest close to inactive mines, concentrations would decrease with increased distance from the inactive mines, and concentrations would eventually level off at distances beyond the mine zone of influence. Plots of concentrations as a function of distance from inactive mines were used to assess this relationship. Figure 8 (inset on the following page) shows an example with lead concentrations plotted against distance from inactive mines in soil samples collected outside the 1931 SO_2 plume area. A generalized additive model (GAM[22]) was used to fit a flexibly shaped curve that shows the general trend in concentrations across distance from the inactive mines (blue line in Figure 8).

As shown on Figure 8, the expected distribution of concentrations with distance from inactive mines was observed for lead. This suggests that inactive mines do, indeed, have an effect on soil metals and metalloids concentrations. Similar results were observed for lead, zinc, and copper

[22] A GAM uses splines to fit flexibly shaped curves that are particularly useful in initial data analysis and exploratory analyses. They are well suited to reveal potentially curvilinear relationships that are not restricted to the shapes imposed by typical straight line or polynomial regression models.

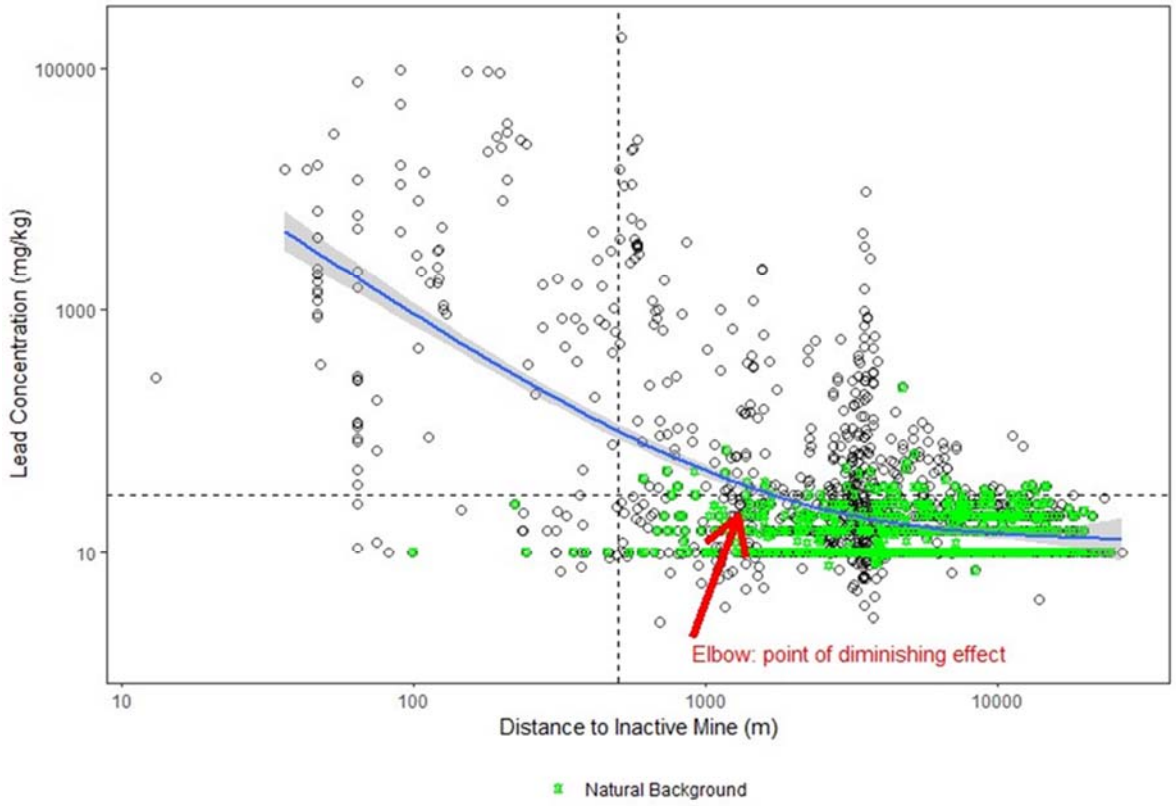
with distance from active and inactive mines and mills for soil outside the 1931 SO_2 plume area, and when the entire soil dataset was evaluated.

The distance at which concentrations stabilize is expected to be the point at which samples are beyond the mine zone of influence (as indicated by the point of diminishing effect illustrated by the GAM curve; see the arrow in Figure 8). This example suggests that the mine zone of influence may extend beyond the 500-m buffer zone used for the Tier II exclusions.

This exploratory evaluation included data from multiple observational studies that were performed for different purposes over many years, and the data did not fall neatly into categories that could be carefully controlled. Therefore, there is a potential for confounding factors that may influence conclusions. These potential confounding factors that may influence area background will be further evaluated as necessary in the site characterization summary and integrated into the RI report, which TAI will prepare in the future as required by Section V, Paragraph 13.c of the Settlement Agreement, Task 3 – Site Characterization (USEPA 2006a).

3.3 Summary of Exploratory Area Background Evaluation

This example suggests that some anthropogenic features within and immediately adjacent to the 1931 SO_2 plume area may have influenced area background soil metals and metalloids concentrations. However, further analysis is warranted to ensure multiple anthropogenic effects are not confounded in such a way as to mask or exaggerate the effects of the individual features. Area background will be comprehensively evaluated and discussed in the site characterization summary and RI report using techniques such as principle component analysis.



Notes: The vertical dashed line represents the 500-meter mine buffer, and the horizontal dashed line represents the natural background UTL for lead. Samples included in the natural background dataset are shown in green. The red arrow indicates the inflection point of the GAM curve that represents the point at which concentrations stabilize outside the mine zone of influence. The grey shading indicates the 95% confidence interval of the GAM fit.

GAM - generalized additive model
UTL - upper tolerance limit

Figure 8. Lead concentrations as a function of distance from inactive mines

4 References

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Figure 6. Mines and calcareous soils in the vicinity of the 1931 SO_2 plume area

Figure 7. Land use and mining within the 1931 SO_2 plume area

Figure 8. Lead concentrations as a function of distance from inactive mines (inset at the end of the main text)

Apply Tier I Screening
- Matrix: All soil and NURE-HSSR sediment samples collected ≤24 in. depth
- Within WRIAs 49, 51, 52, 53, 54, 55, 58, 59, 60, 61, and 62
- Aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc

→ **Tier I Dataset**

Apply Location-Based Screening Criteria
- Outside 1931 SO_2 plume area
- Distance to nearest road ≥50 m away
- Distance to nearest railway ≥50 m away
- Distance to nearest landfill ≥500 m
- Distance to nearest mine or mill as defined by latitude and longitude location (i.e., a point) in the Mineral Resources Data System (MRDS) ≥500 m as follows:
  - Producers
  - Past producers
  - Plants
  - Locations designated as "unknown" development status
- Distance to nearest landslide—Outside footprint
- Outside 100-year floodplain

→ **Tier IIA Dataset**

Apply Supplemental Tier II Screening
- Replicate samples averaged
- Retain NURE-HSSR samples that were reanalyzed over the original results from the 1970s with the exception of silver for which the older analysis had lower detection limits.
- Remove replicate results for arsenic by two methods for Study ID geochem-fU53 (AA retained over ICP because AA had lower detection limits)
- Additional review of samples near Van Stone, Sierra Zinc, Pend Oreille, Yellowhead, and Midnite Mines for ≥500 m setback

→ **Tier IIB Dataset**

Supplemental Tier III Screening
Add (if needed) sample and analysis Information
- Screen for 0–6 in depth interval (lower depth ≤6 in)
- Review and screen for particle size (no exclusions)
- Review and categorize sample preparation and analysis methods

→ **Tier IIIA Dataset**

Data Review and Statistical Assessment
- Boxplots by analysis category, by metal
- Analysis of variance for significant differences, by metal

→ Total Metals Methods
→ Partial Digestion Methods (EPA 3050 or Equivalent)
→ Mercury
→ **Tier IIIB Dataset**

Comparability Assessment
- Review underlying geology and soil parent material
- Review sample type
  - 25 acre 30-point composite (TAI 2014)
  - 5-point composite
  - Single grab
- Review material analyzed (<2 mm and <150 µm)

Removal of Partial Digestion Results Identified by EPA
- All results for samples in WRIA 61 prepared by partial digestion (25 samples from TAI [2015b] and Ecology [2013b])
- Results for Sample RZAH028S1 from Church et al. (2008)
- Results for Sample MJ0FL1 from USEPA (2002c)

→ **Tier IIIC Dataset**

Background Assessment by Comparable Sample Group
- All Total Metals samples
- All Partial Digestion samples
- Mercury

ProUCL background assessment for 95/95 upper tolerance limit (95% upper confidence limit on 95th percentile)

Notes:

AA	atomic adsorption
ICP	inductively coupled plasma
INAA	irradiated neutron activation analysis
LOI	loss on ignition
NURE-HSSR	National Uranium Resource Evaluation-Hydrogeochemical and Stream Sediment Reconnaissance
WRIA	water resources inventory area

Figure 1. Flow chart showing steps used to generate the natural background dataset

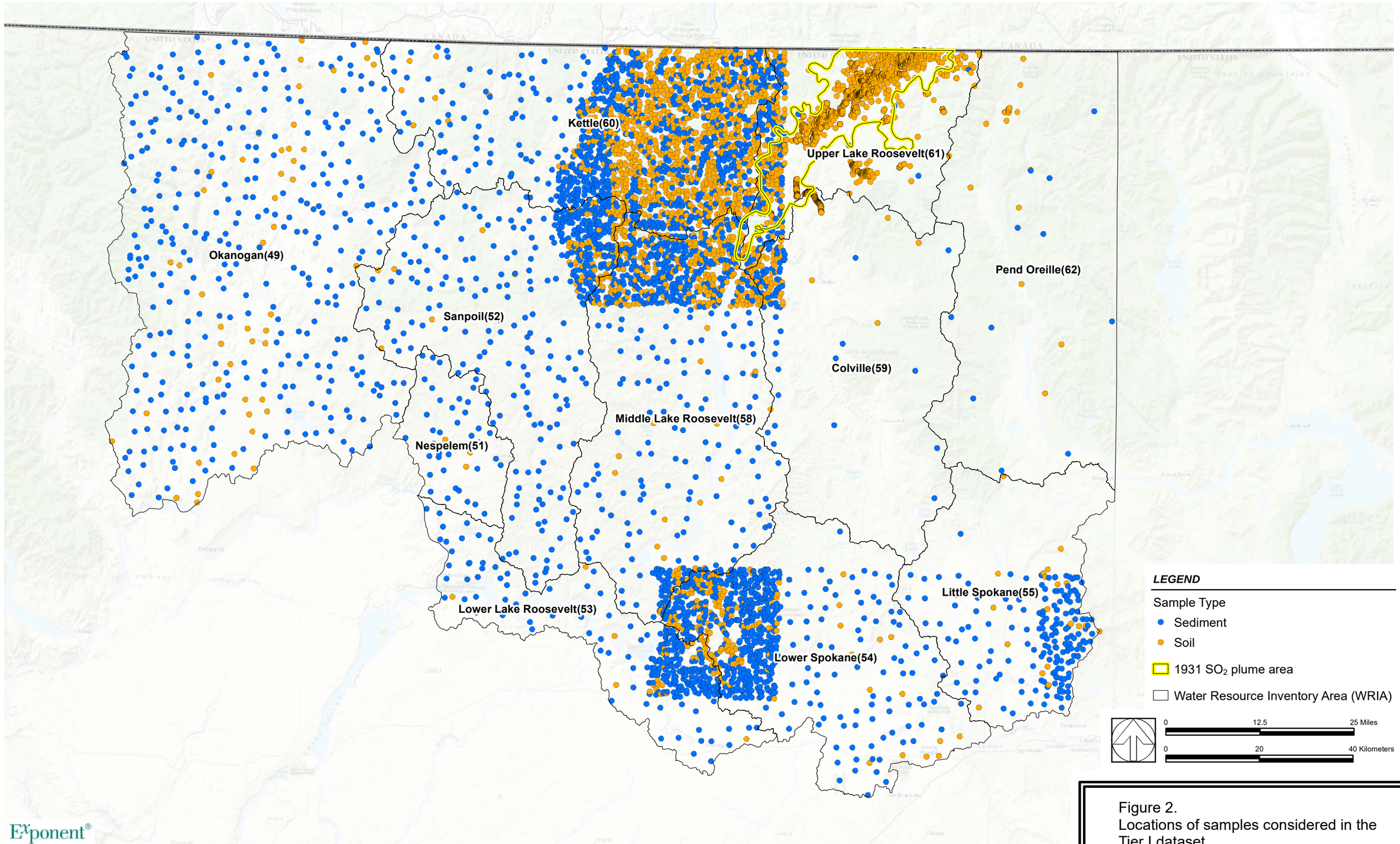


Figure 2.
Locations of samples considered in the Tier I dataset

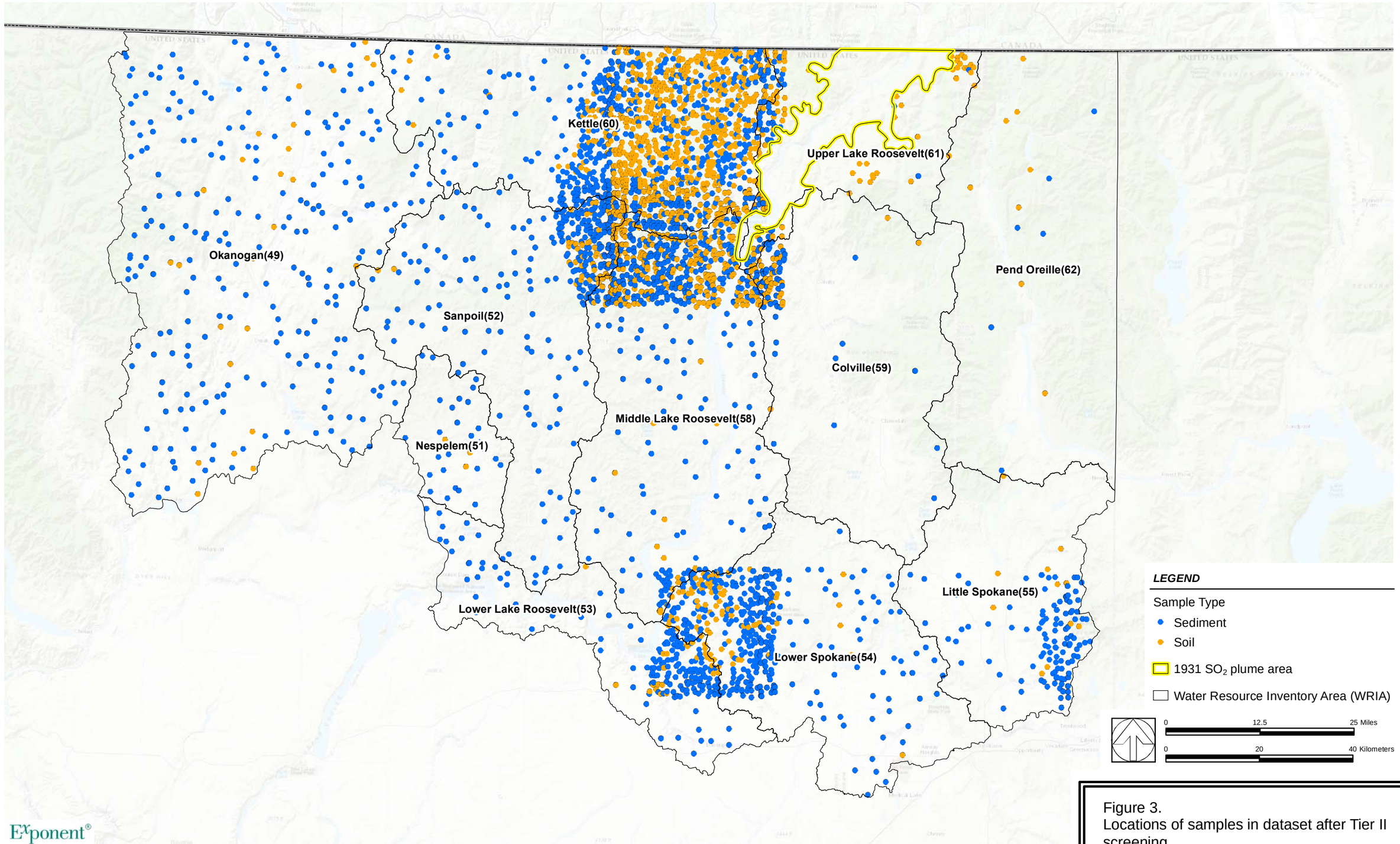


Figure 3.
Locations of samples in dataset after Tier II screening

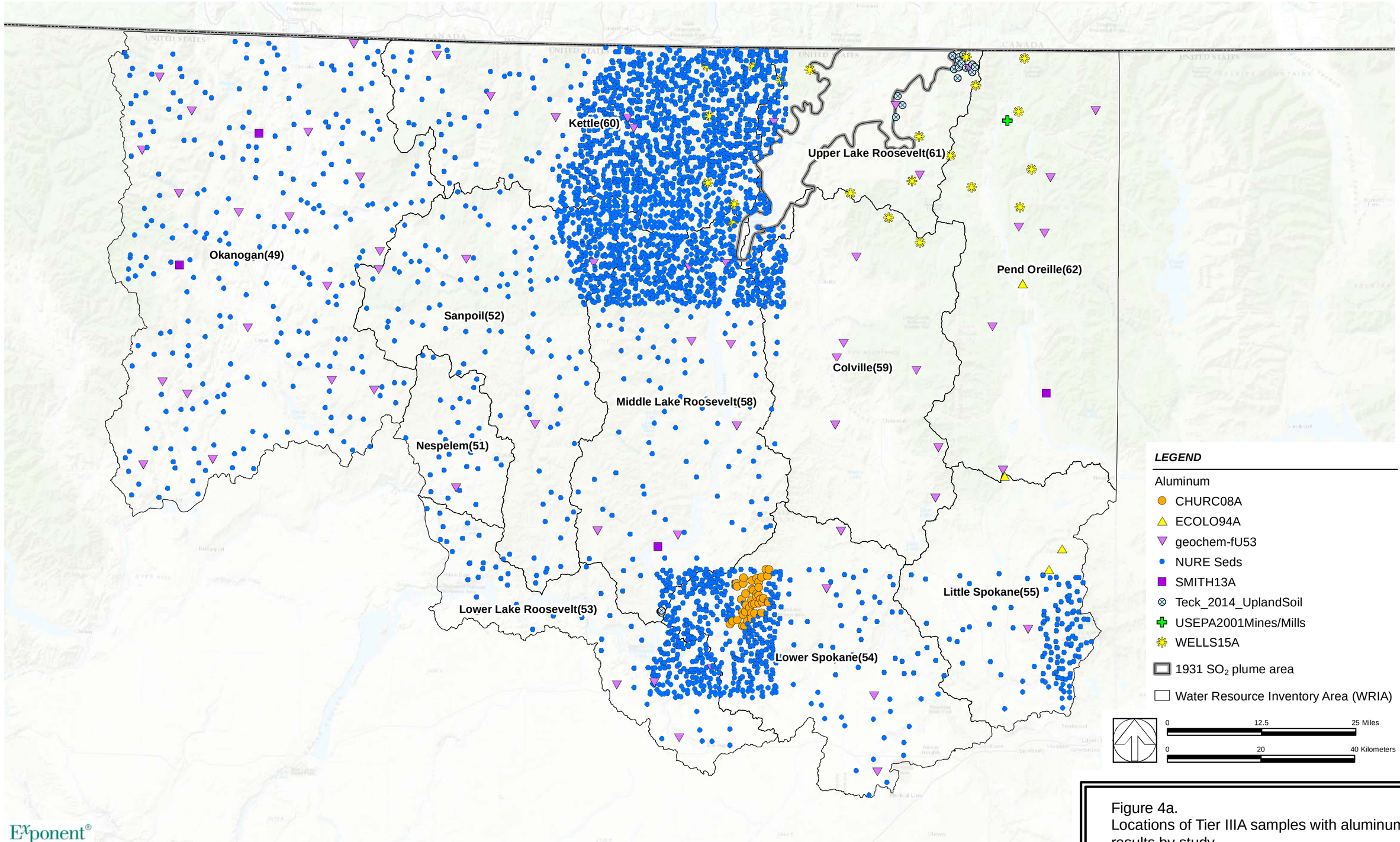


Figure 4a.
Locations of Tier IIIA samples with aluminum results by study

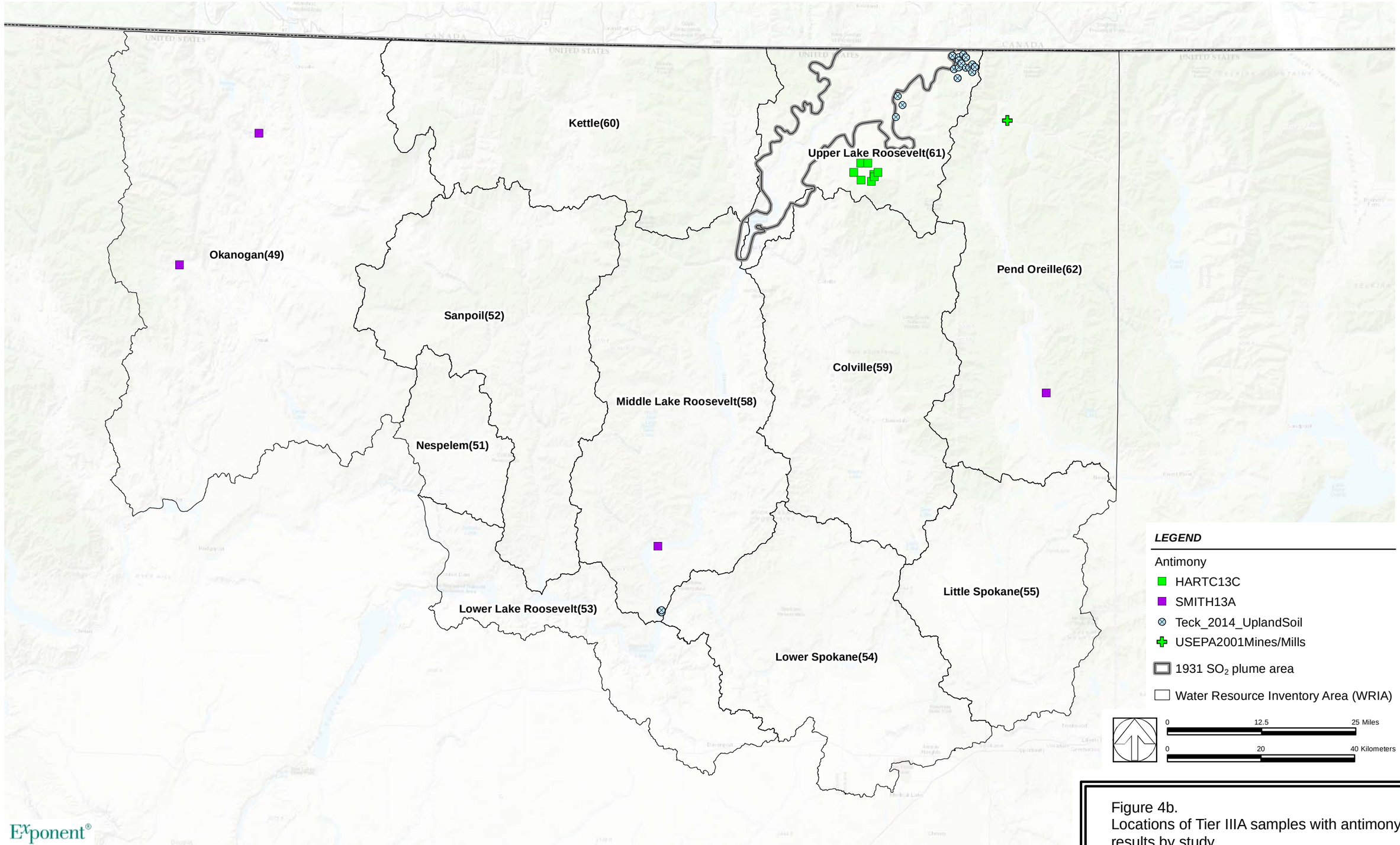


Figure 4b.
Locations of Tier IIIA samples with antimony results by study

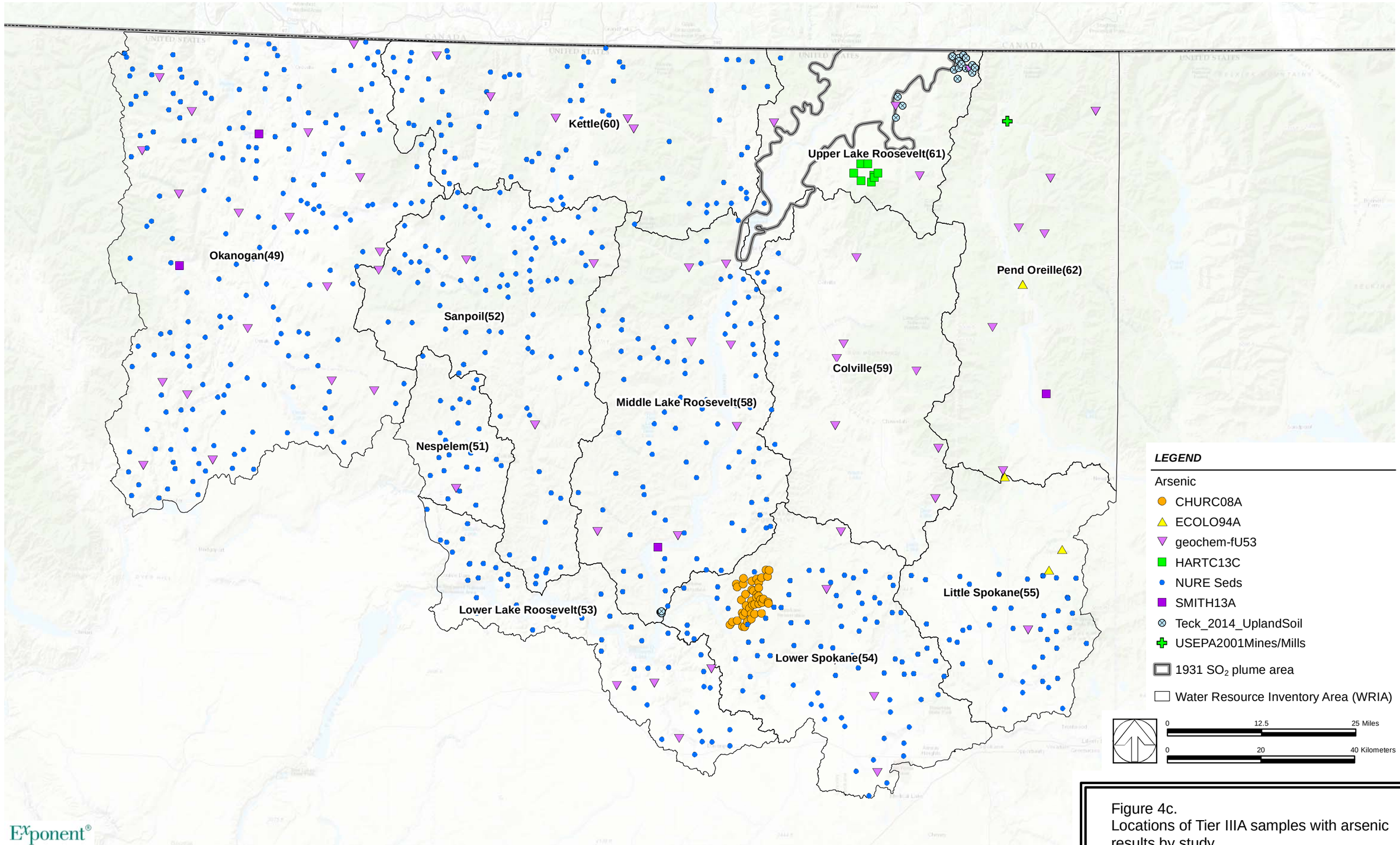


Figure 4c.
Locations of Tier IIIA samples with arsenic results by study

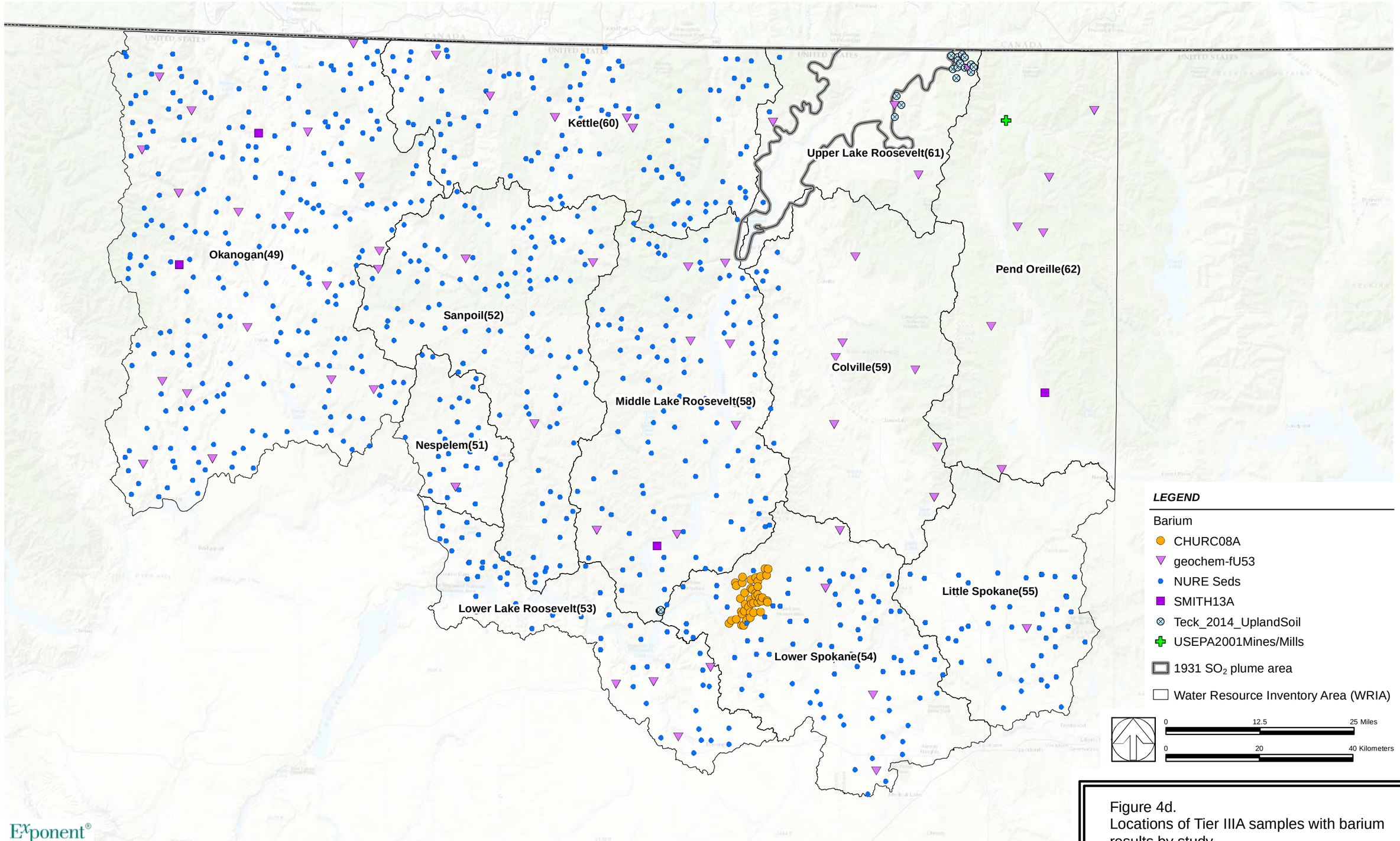


Figure 4d.
Locations of Tier IIIA samples with barium results by study

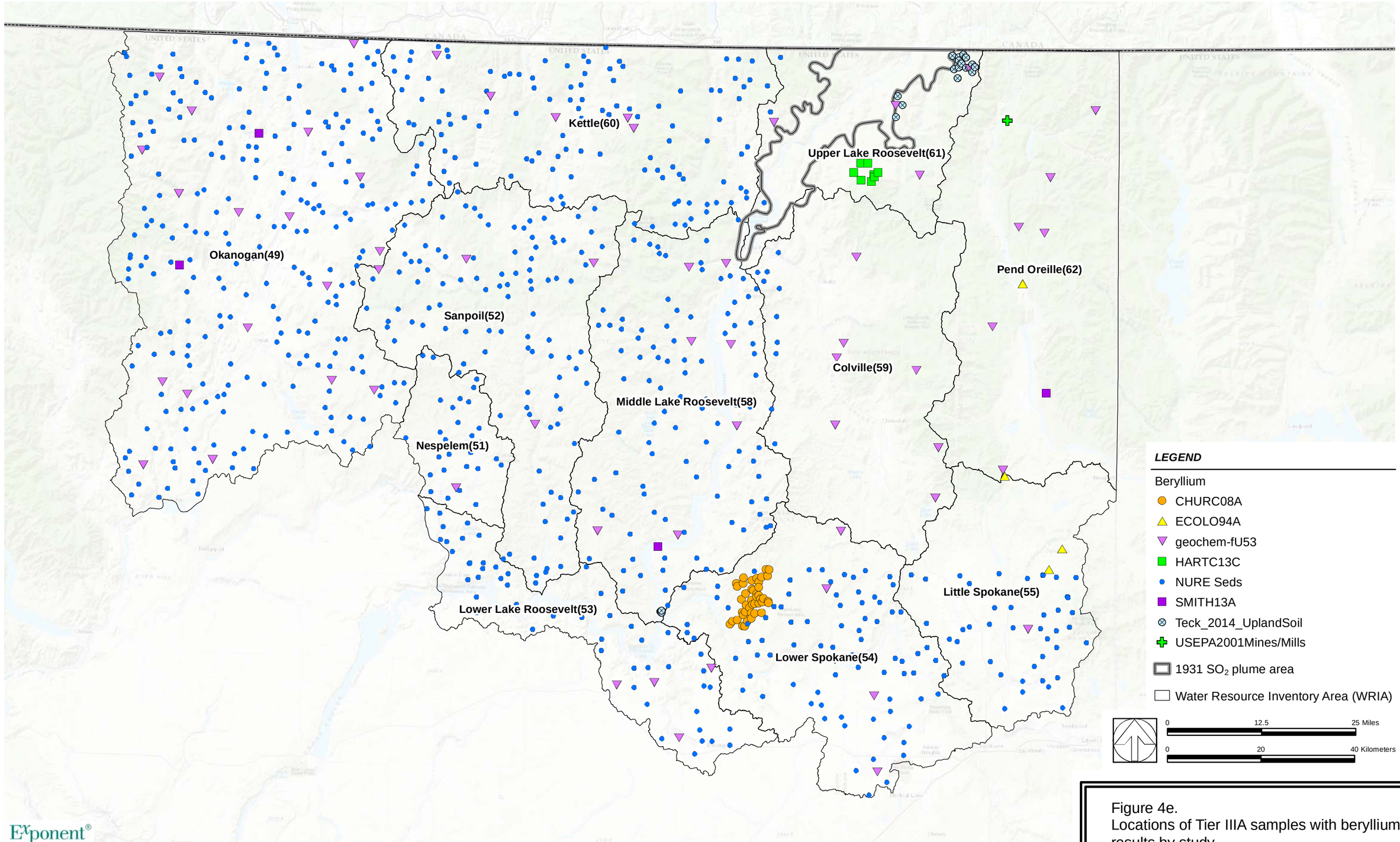


Figure 4e.
Locations of Tier IIIA samples with beryllium results by study

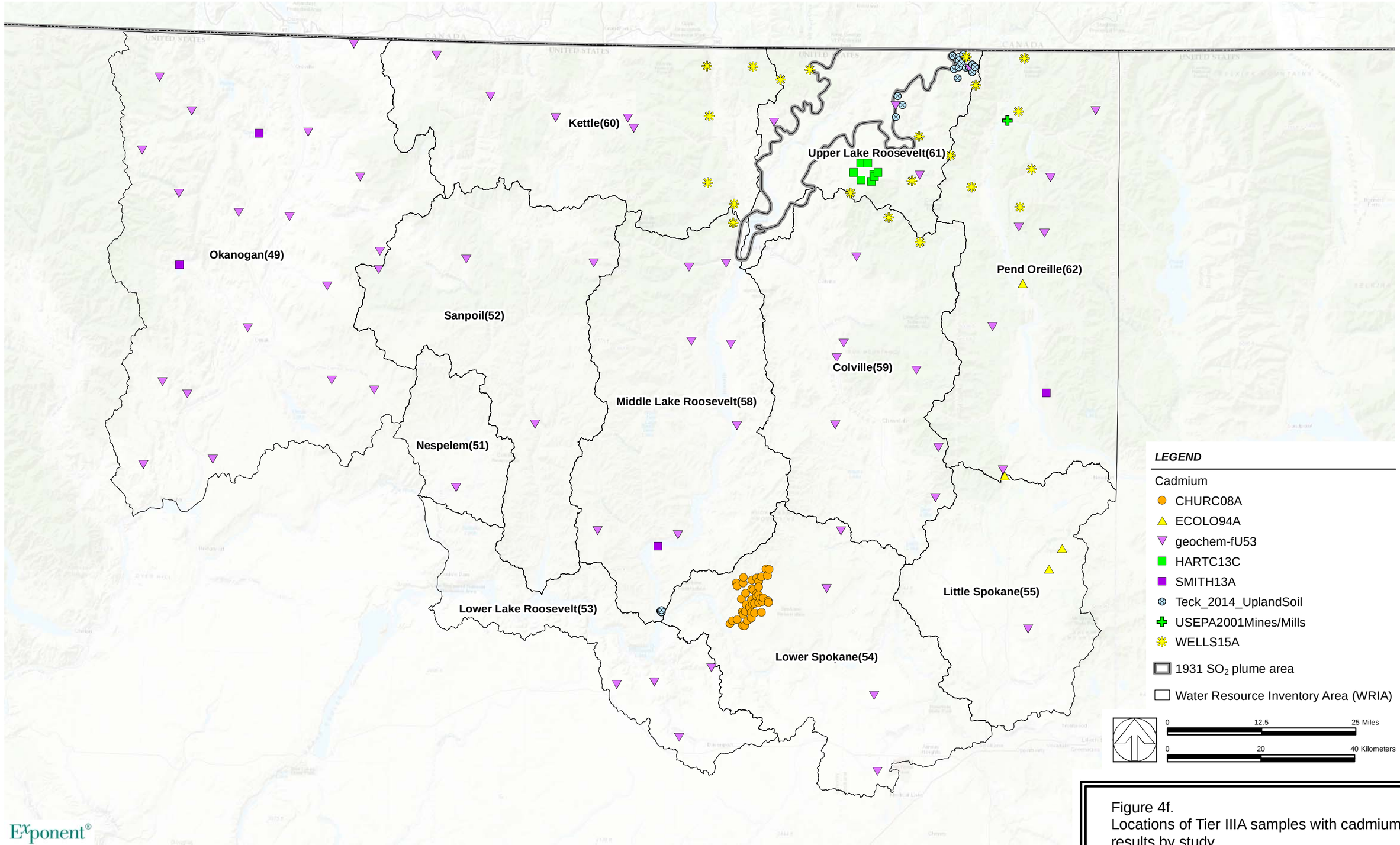


Figure 4f.
Locations of Tier IIIA samples with cadmium results by study

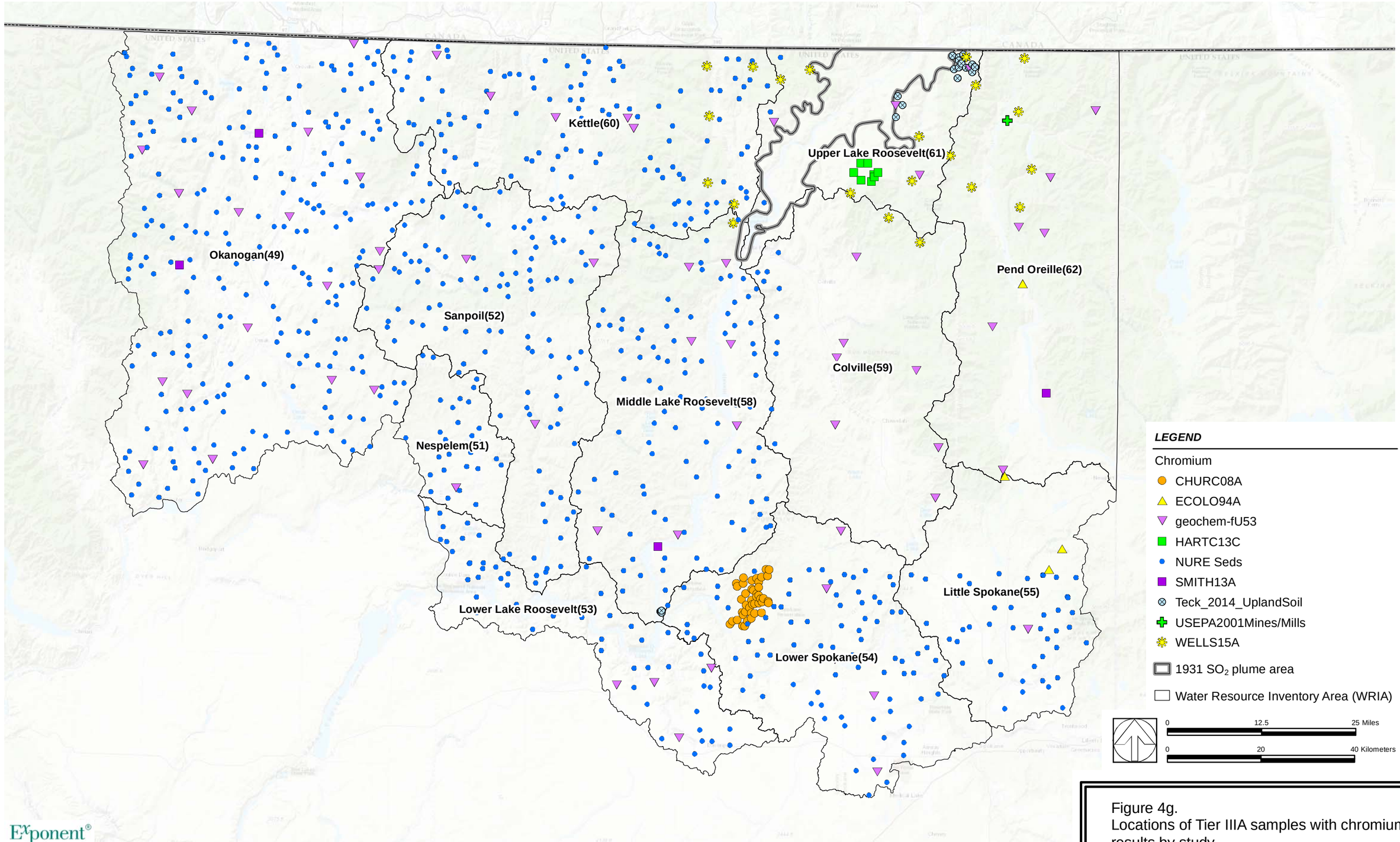


Figure 4g.
Locations of Tier IIIA samples with chromium results by study

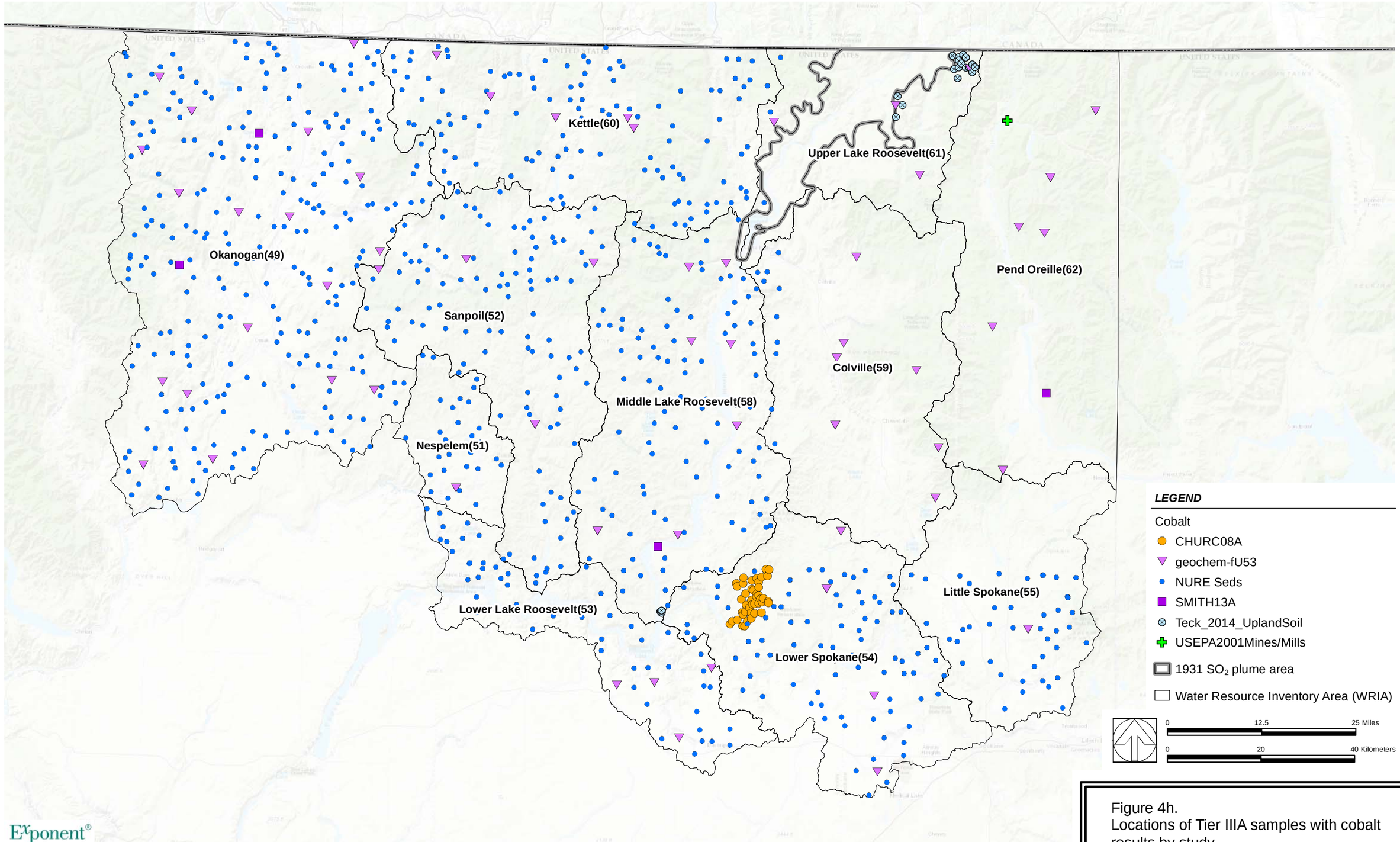


Figure 4h.
Locations of Tier IIIA samples with cobalt results by study

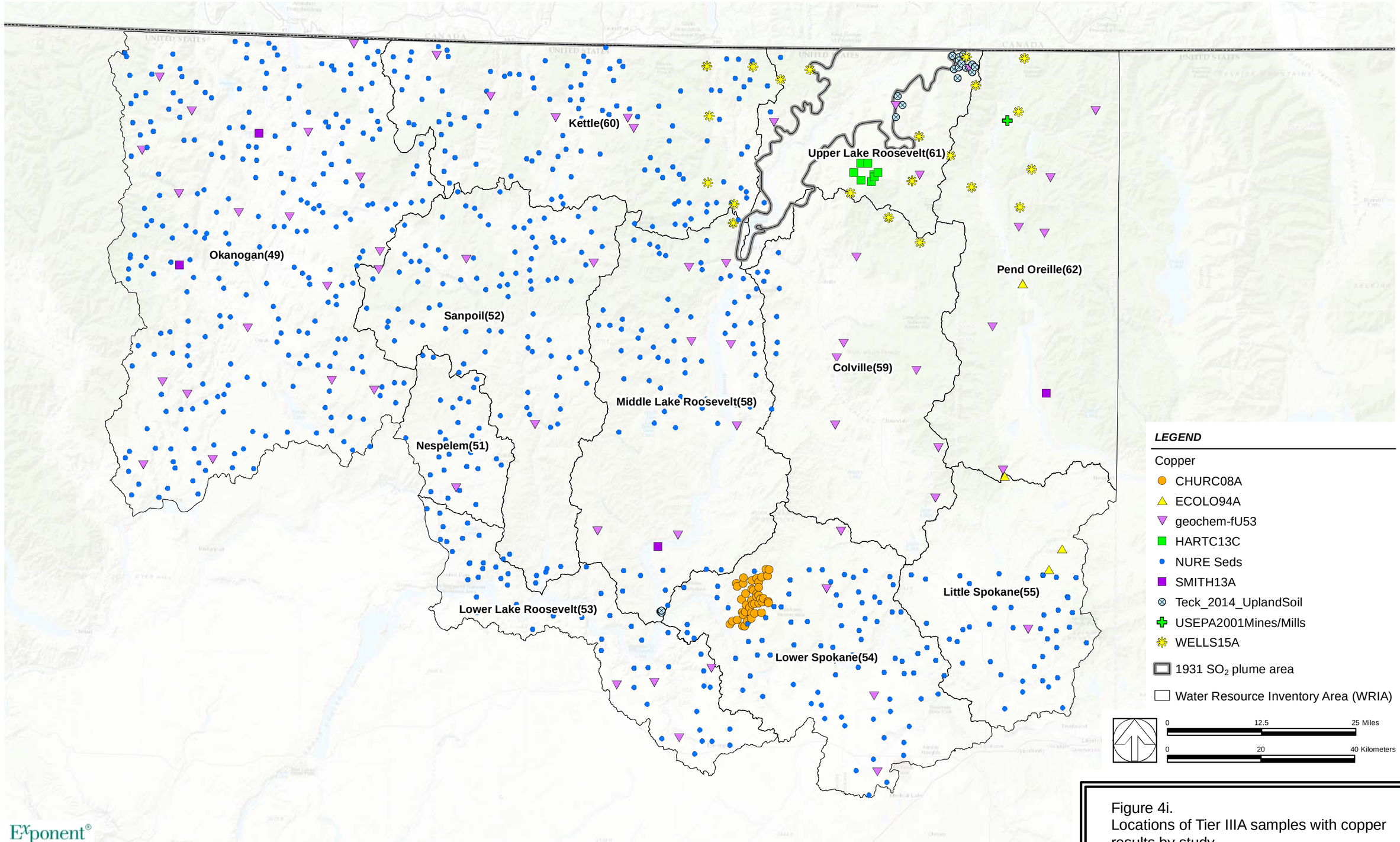


Figure 4i.
Locations of Tier IIIA samples with copper results by study

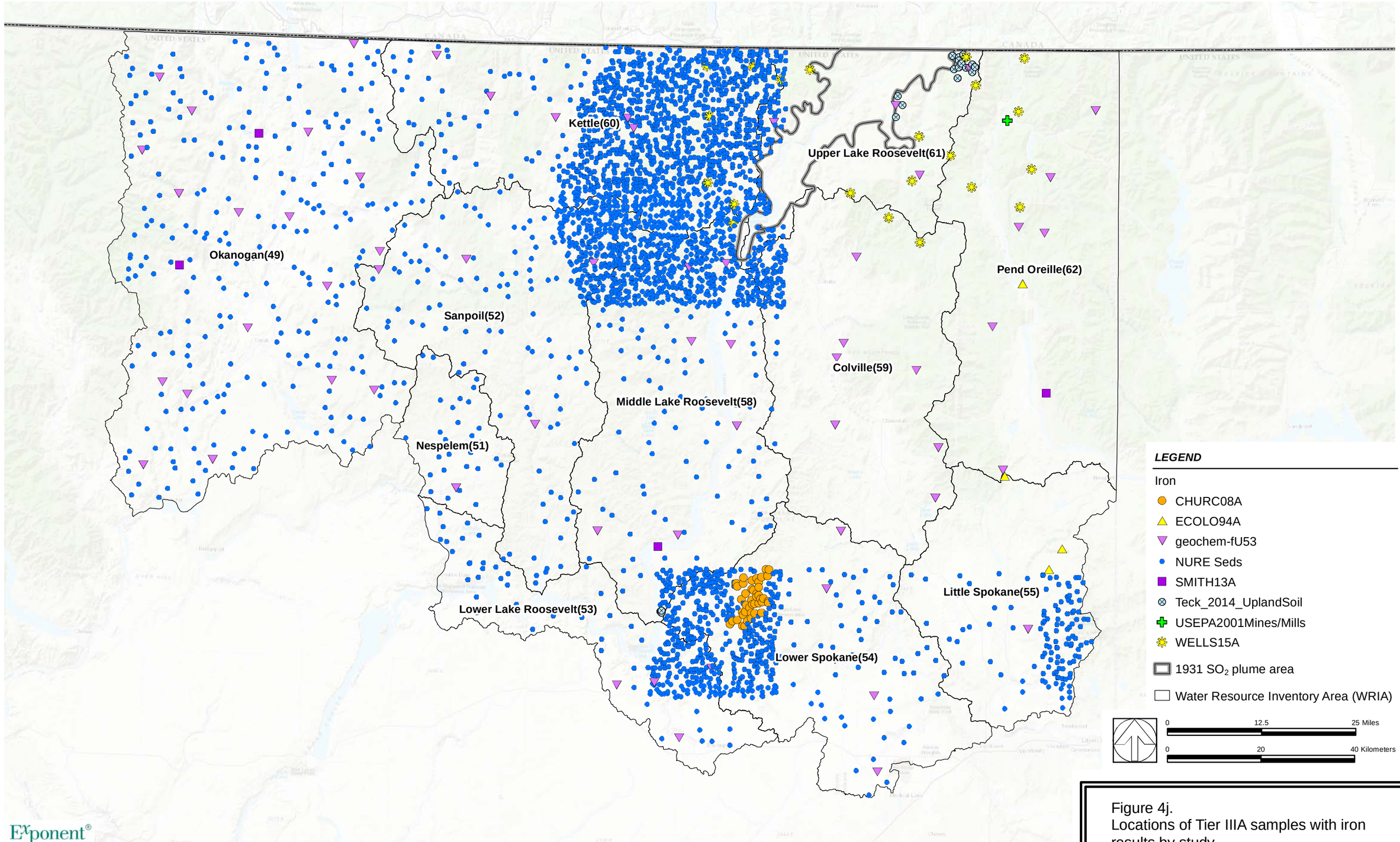


Figure 4j.
Locations of Tier IIIA samples with iron results by study

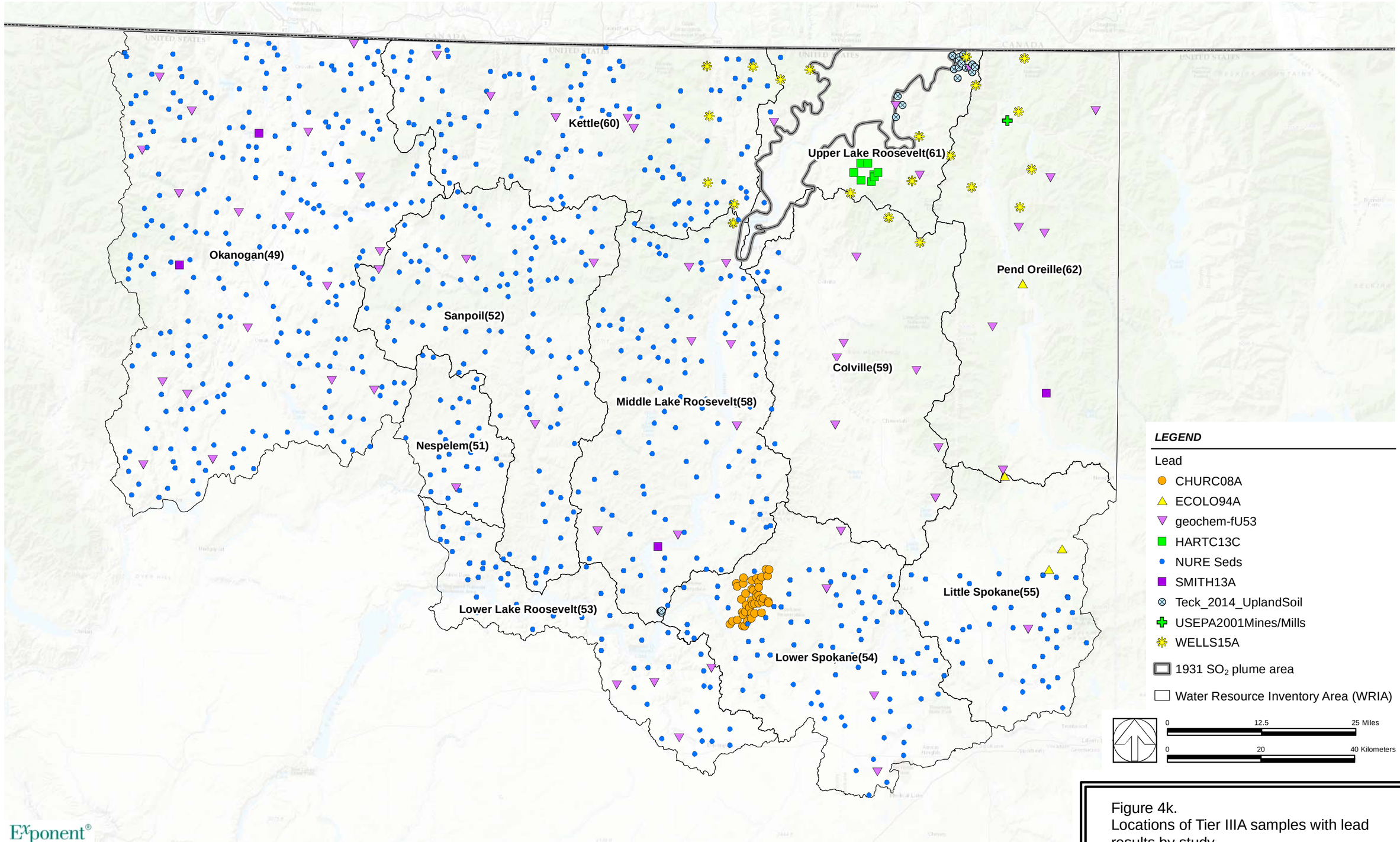


Figure 4k.
Locations of Tier IIIA samples with lead results by study

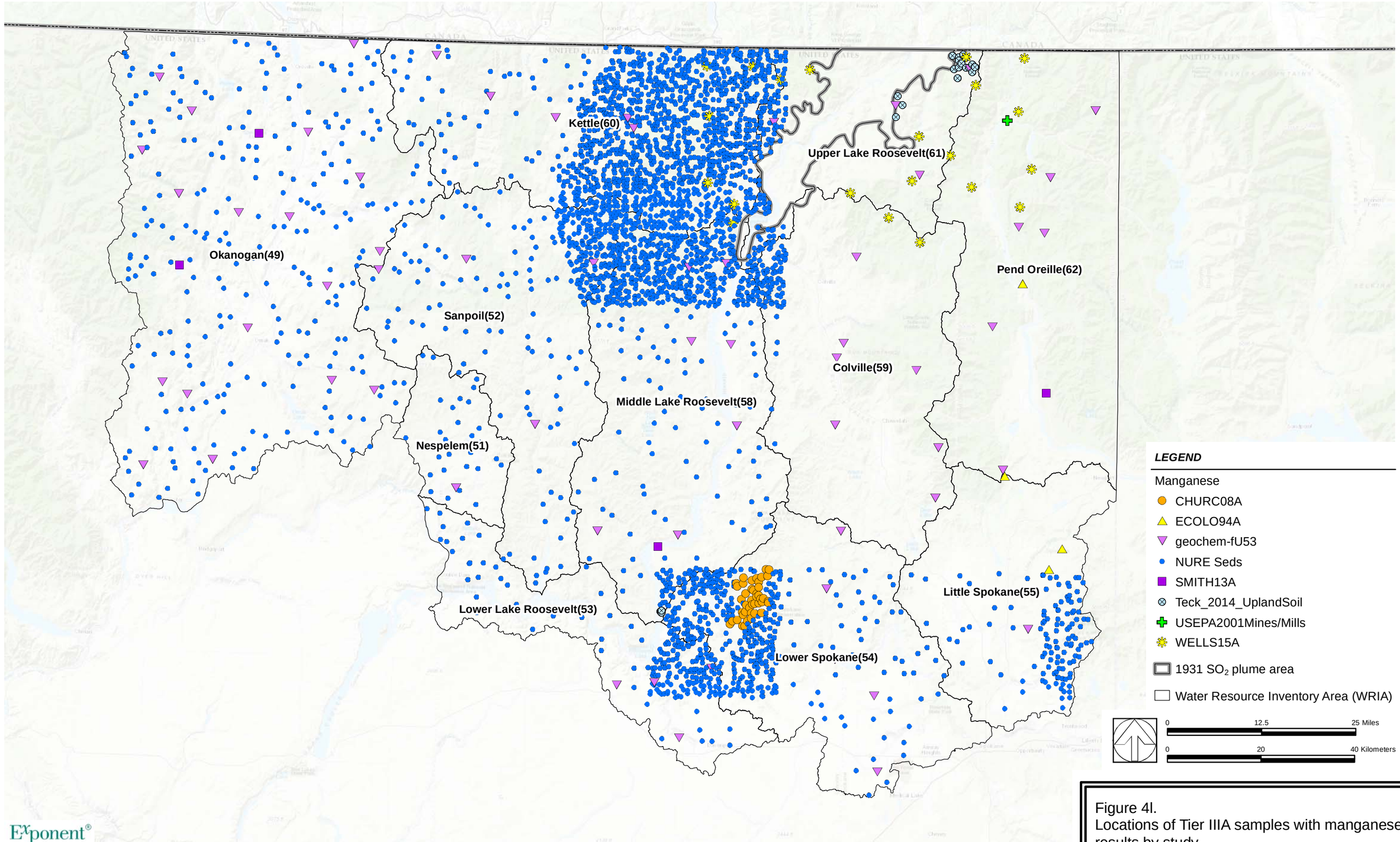


Figure 4l.
Locations of Tier IIIA samples with manganese results by study

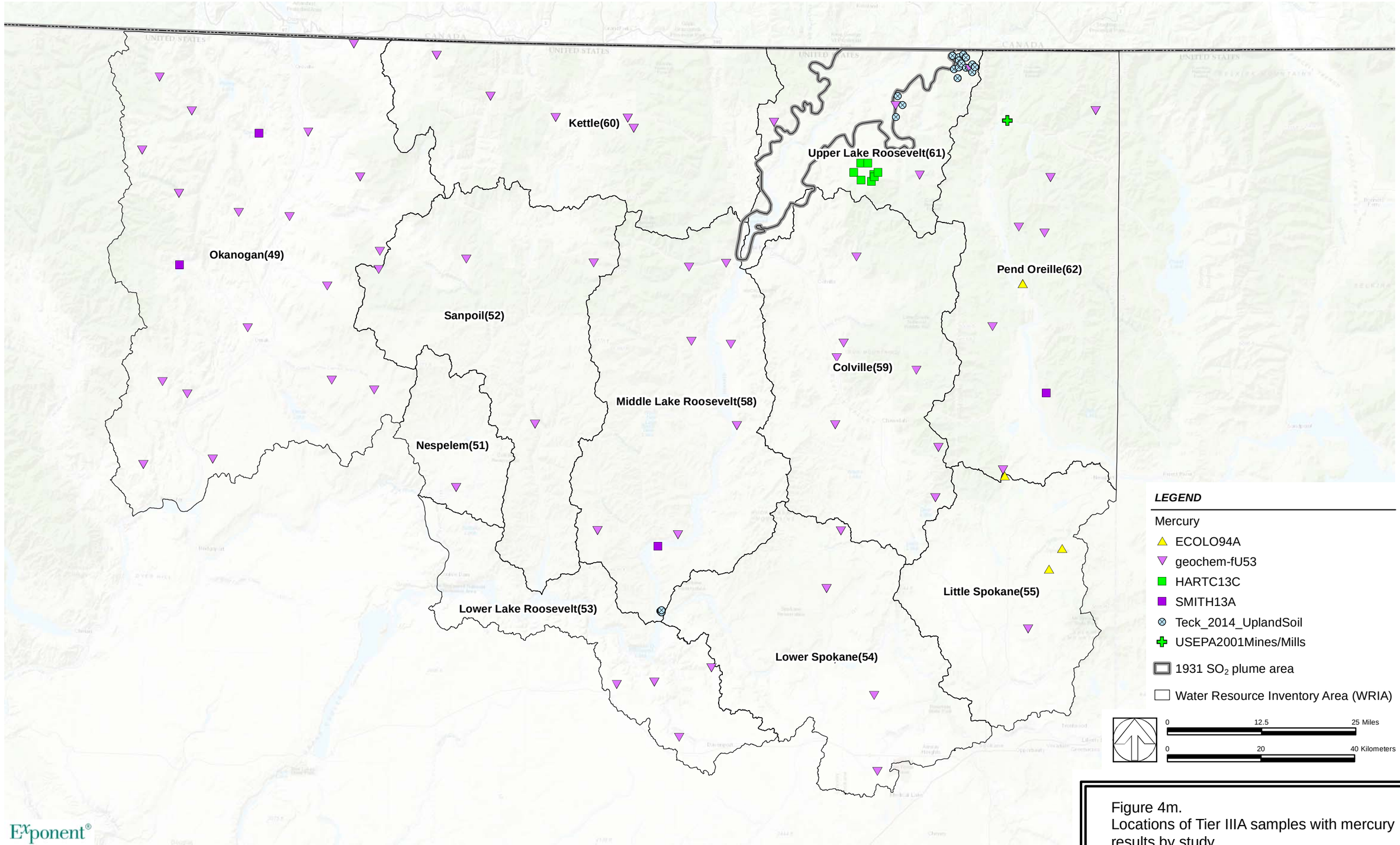


Figure 4m.
Locations of Tier IIIA samples with mercury results by study

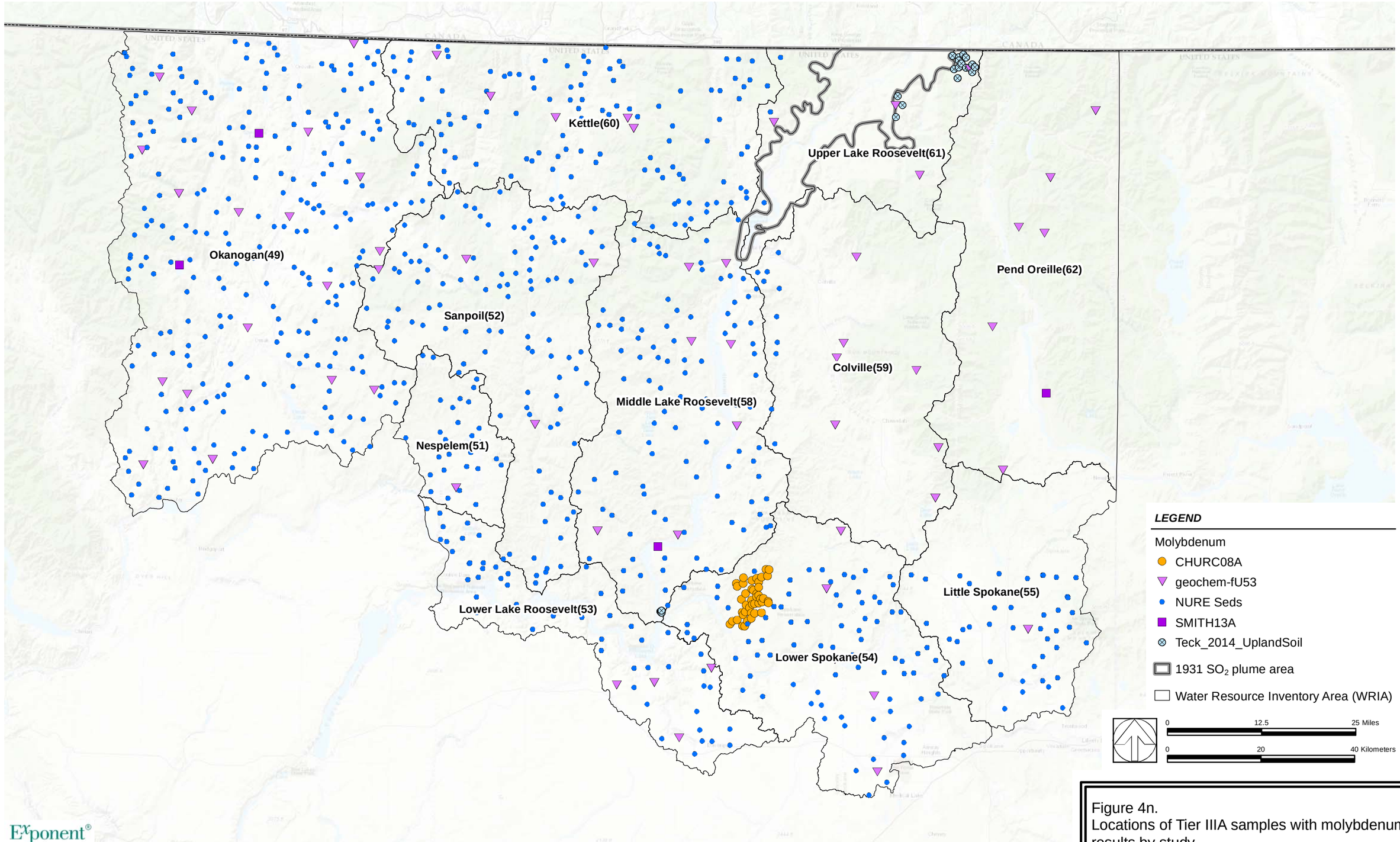


Figure 4n.
Locations of Tier IIIA samples with molybdenum results by study

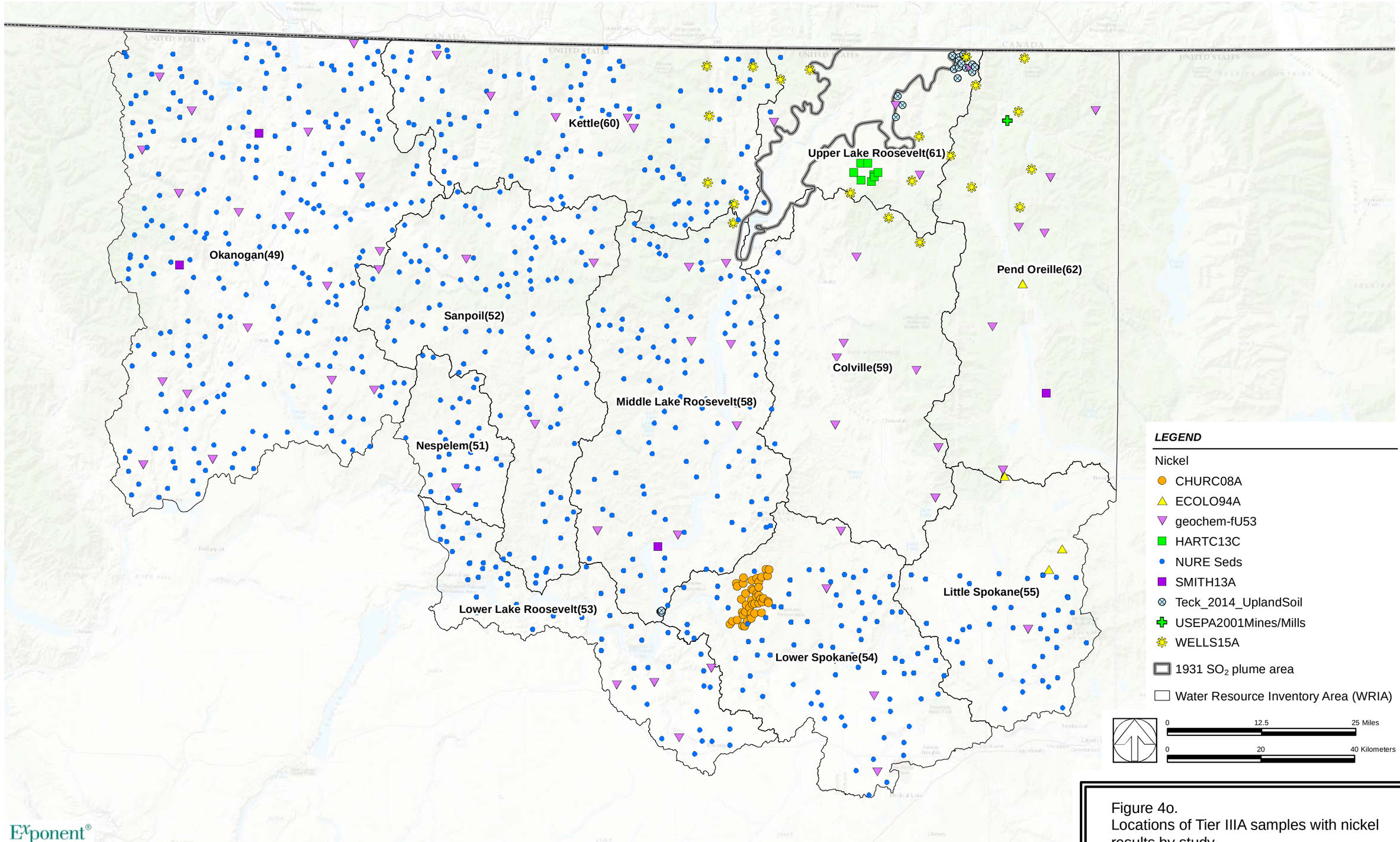


Figure 4o.
Locations of Tier IIIA samples with nickel results by study

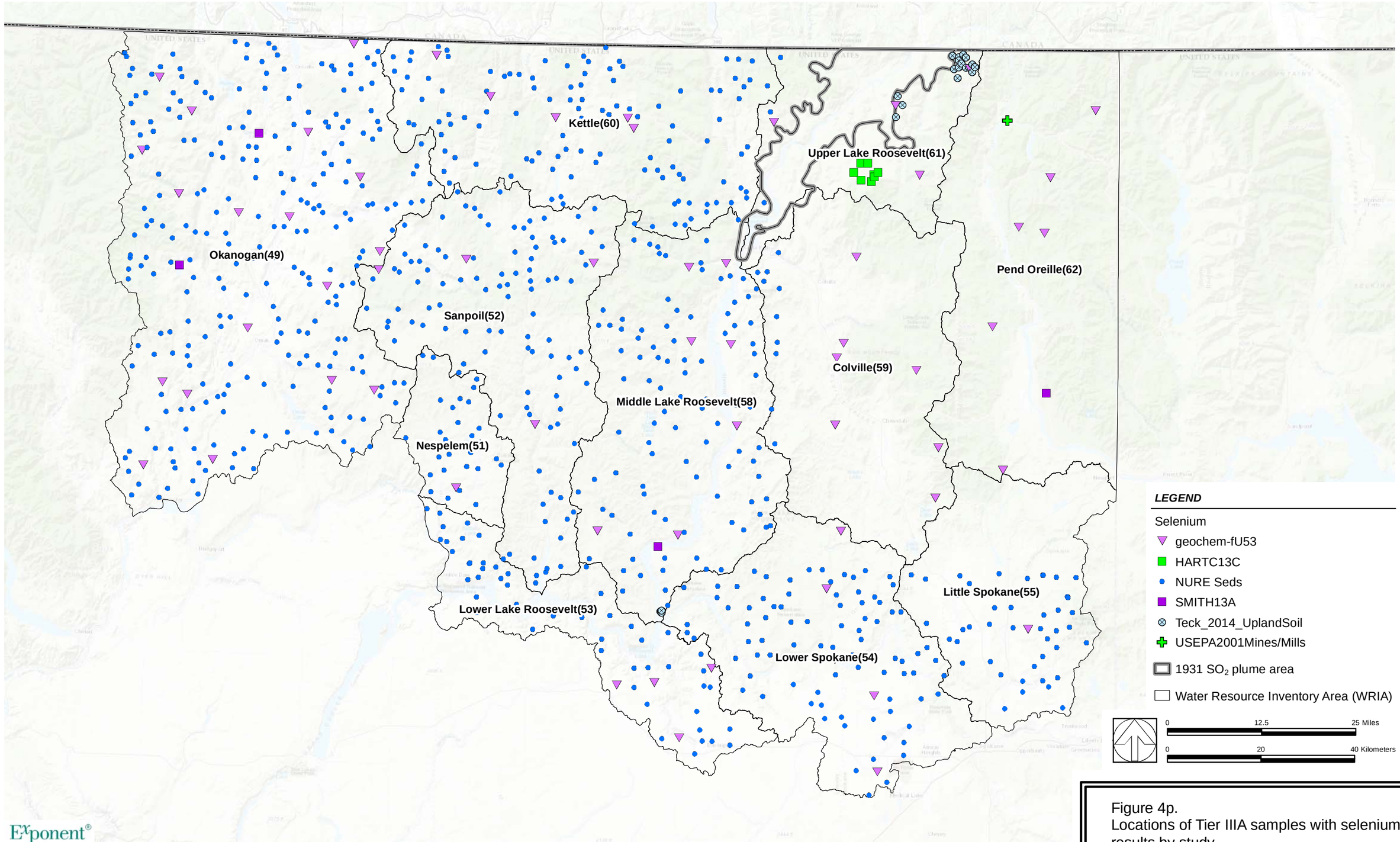


Figure 4p.
Locations of Tier IIIA samples with selenium results by study

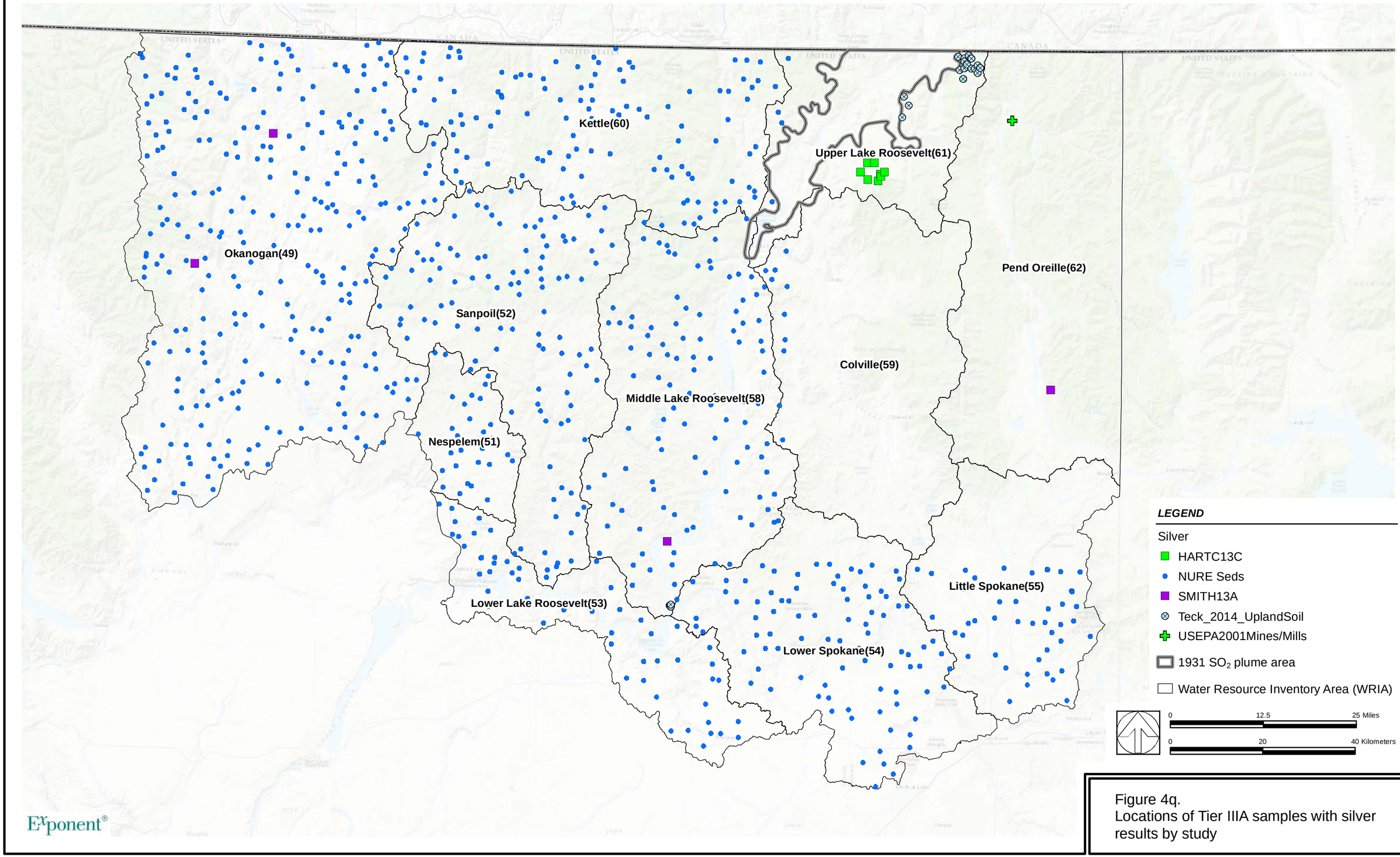


Figure 4q.
Locations of Tier IIIA samples with silver results by study

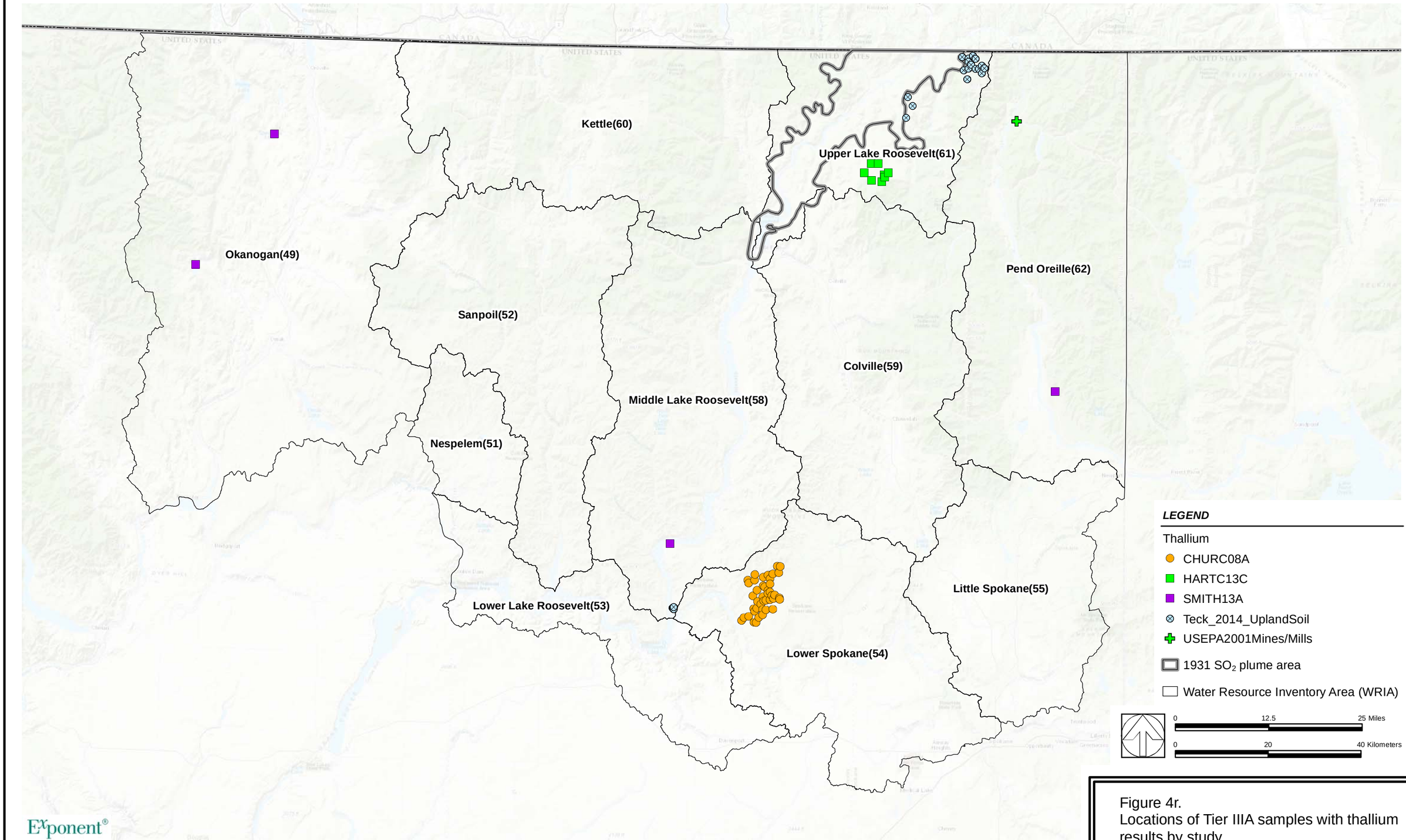


Figure 4r.
Locations of Tier IIIA samples with thallium results by study

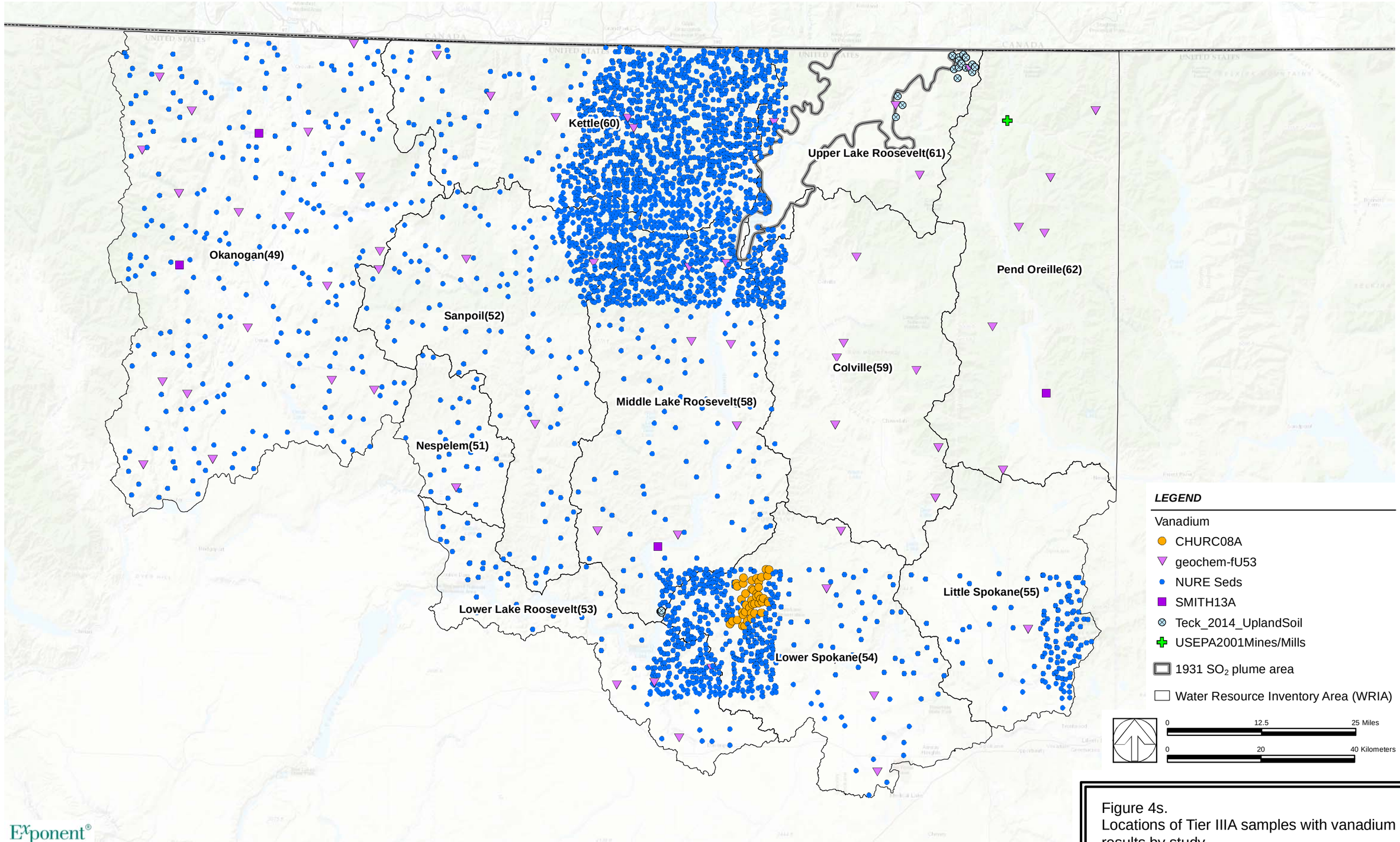


Figure 4s.
Locations of Tier IIIA samples with vanadium results by study

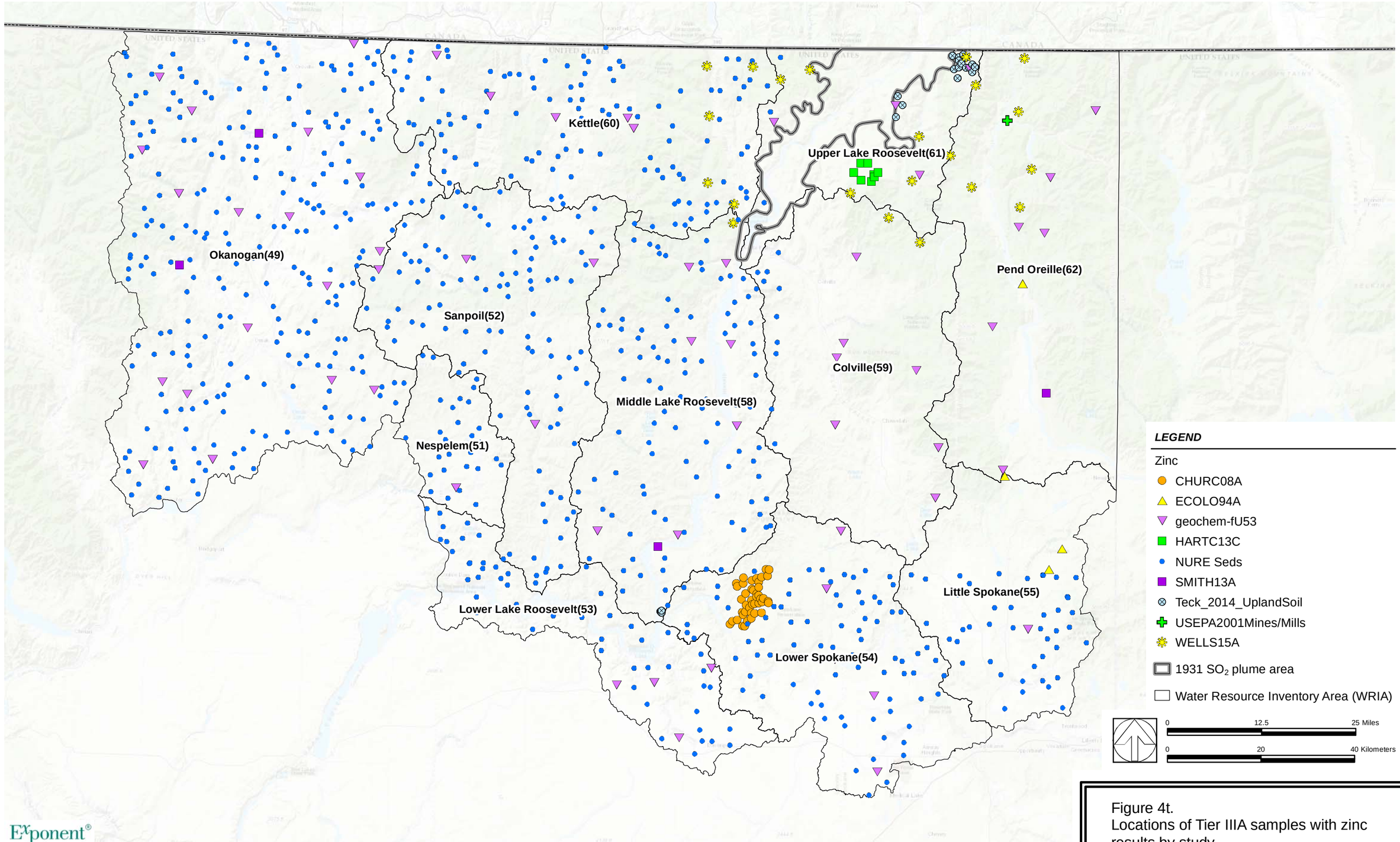


Figure 4t.
Locations of Tier IIIA samples with zinc results by study

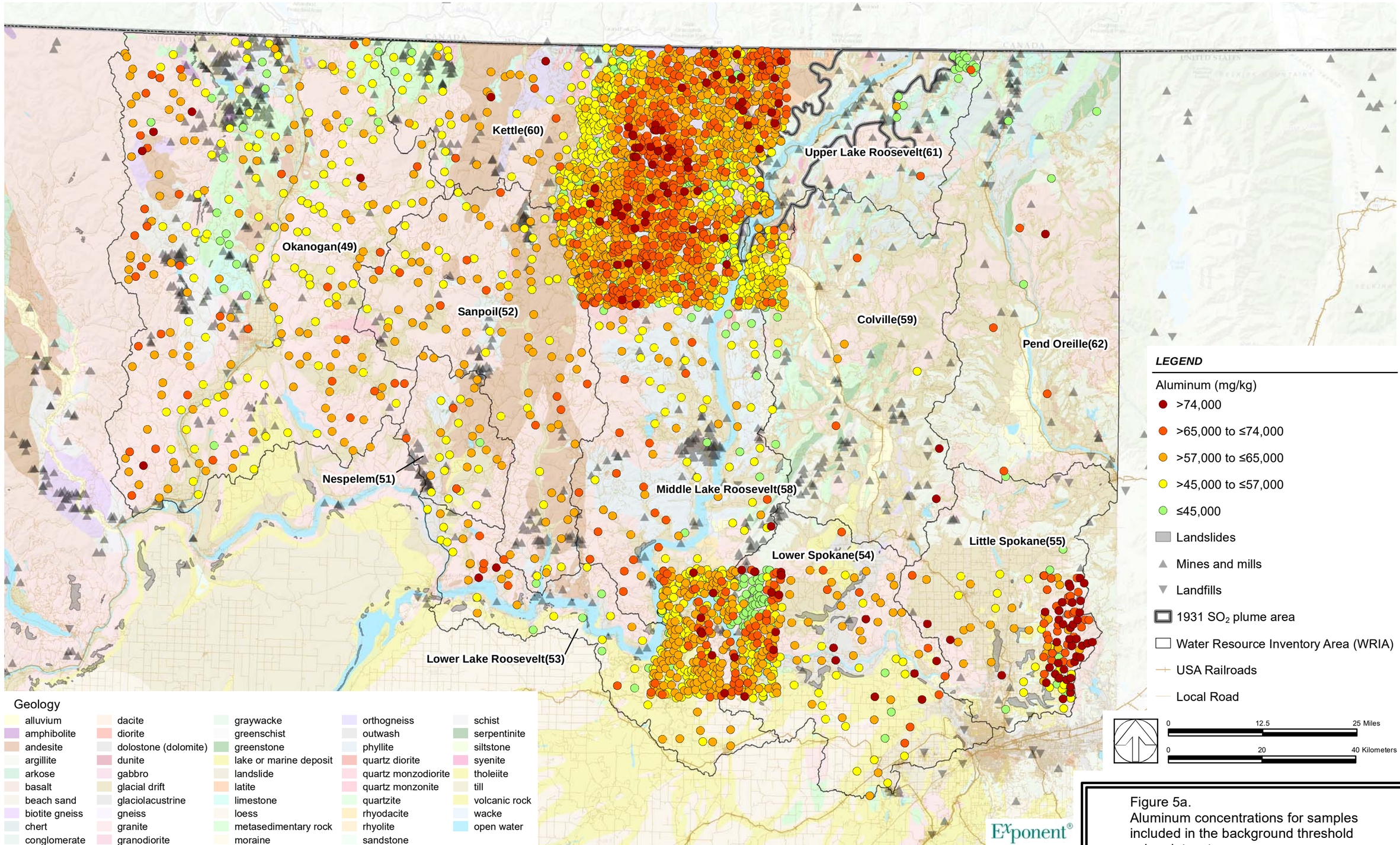


Figure 5a.
Aluminum concentrations for samples included in the background threshold value dataset

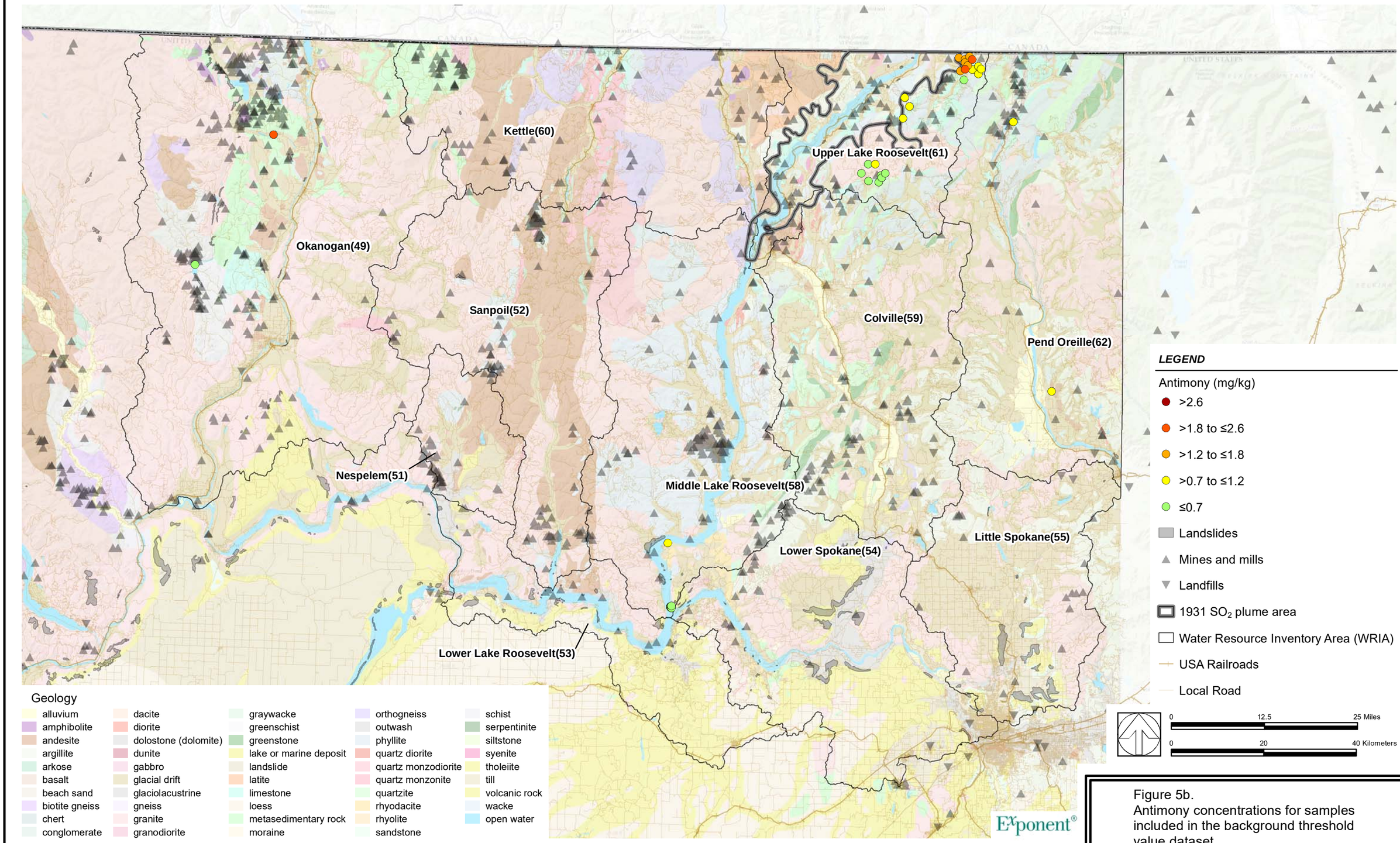


Figure 5b.
Antimony concentrations for samples included in the background threshold value dataset

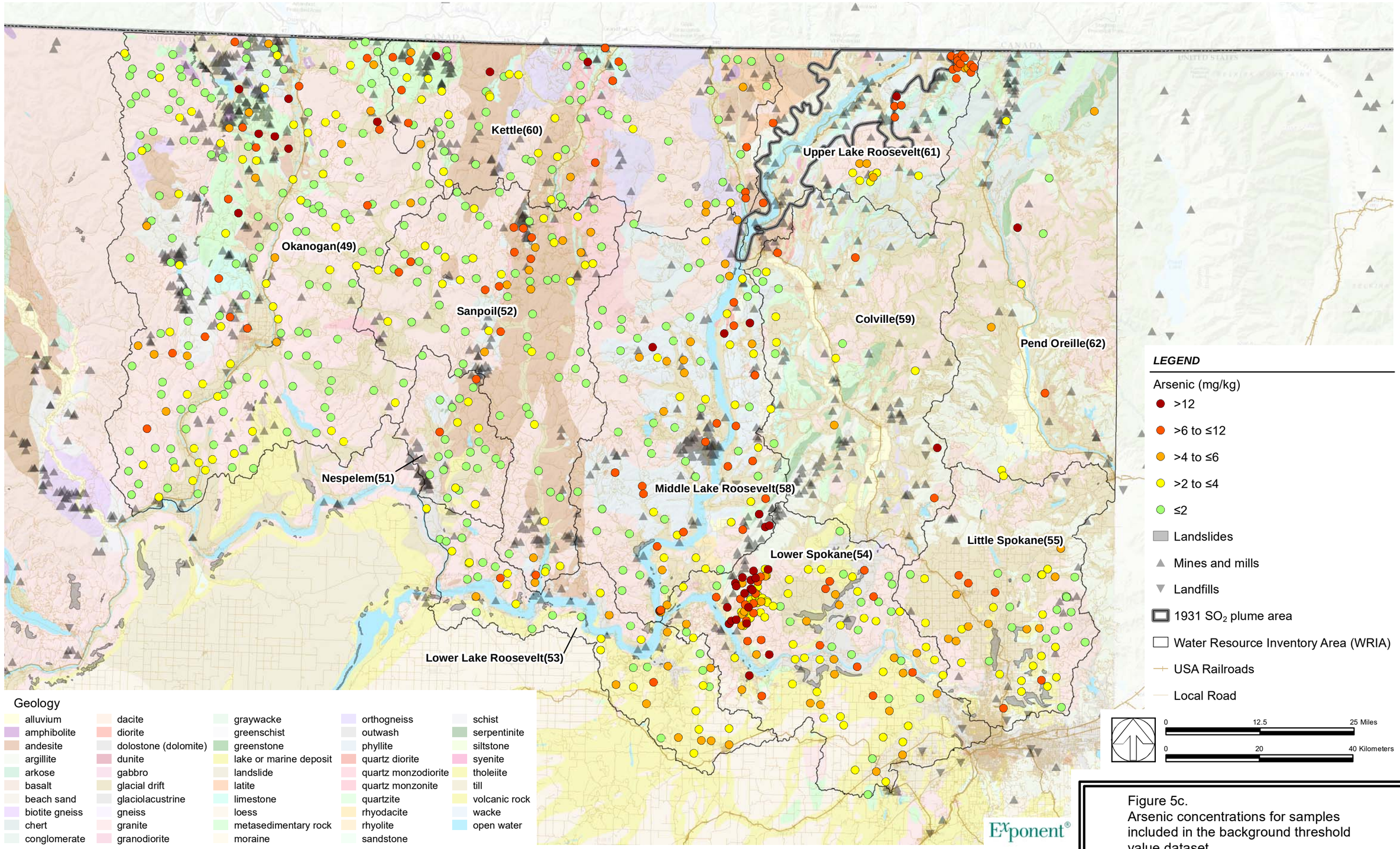


Figure 5c.
Arsenic concentrations for samples included in the background threshold value dataset

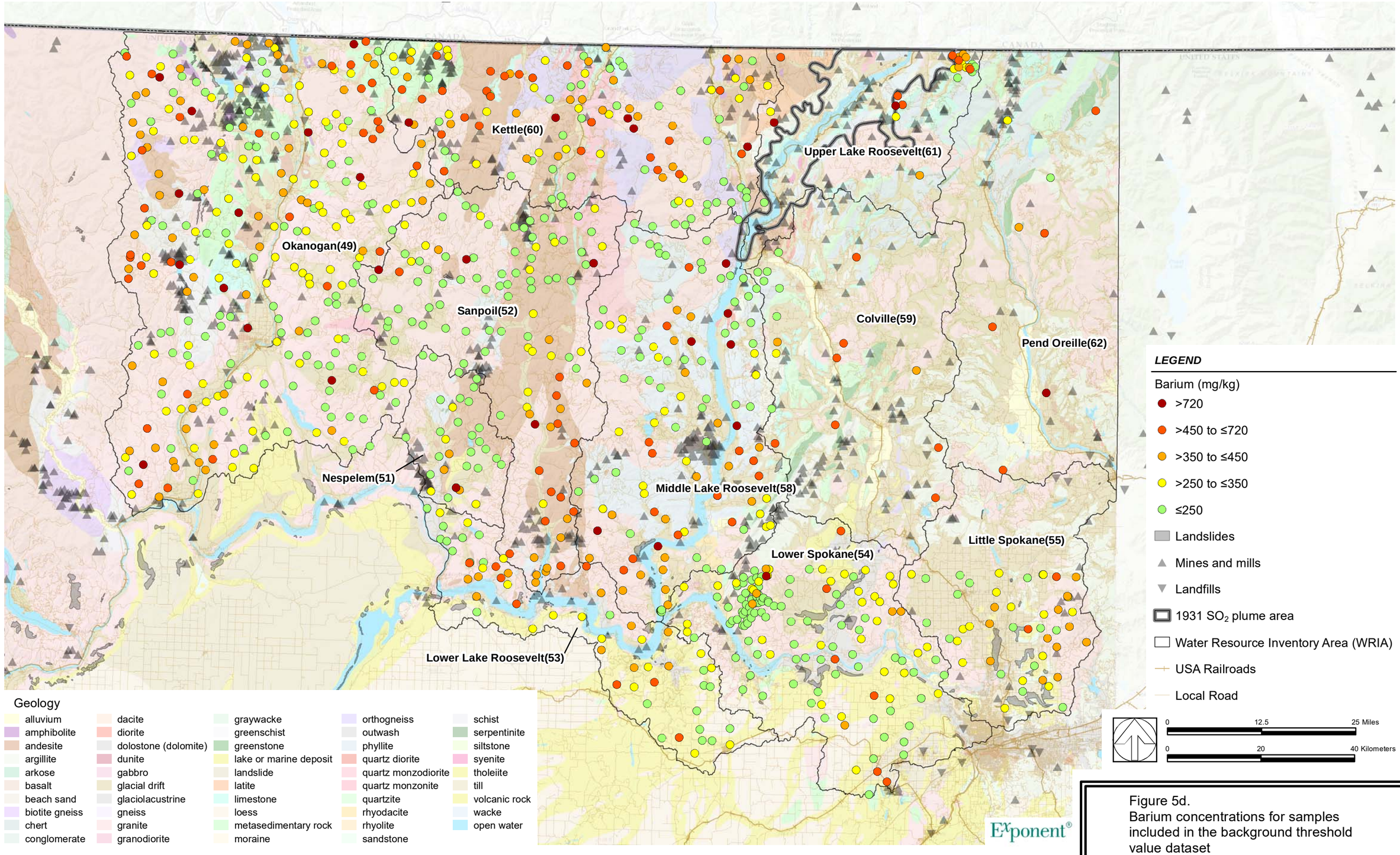


Figure 5d.
Barium concentrations for samples included in the background threshold value dataset

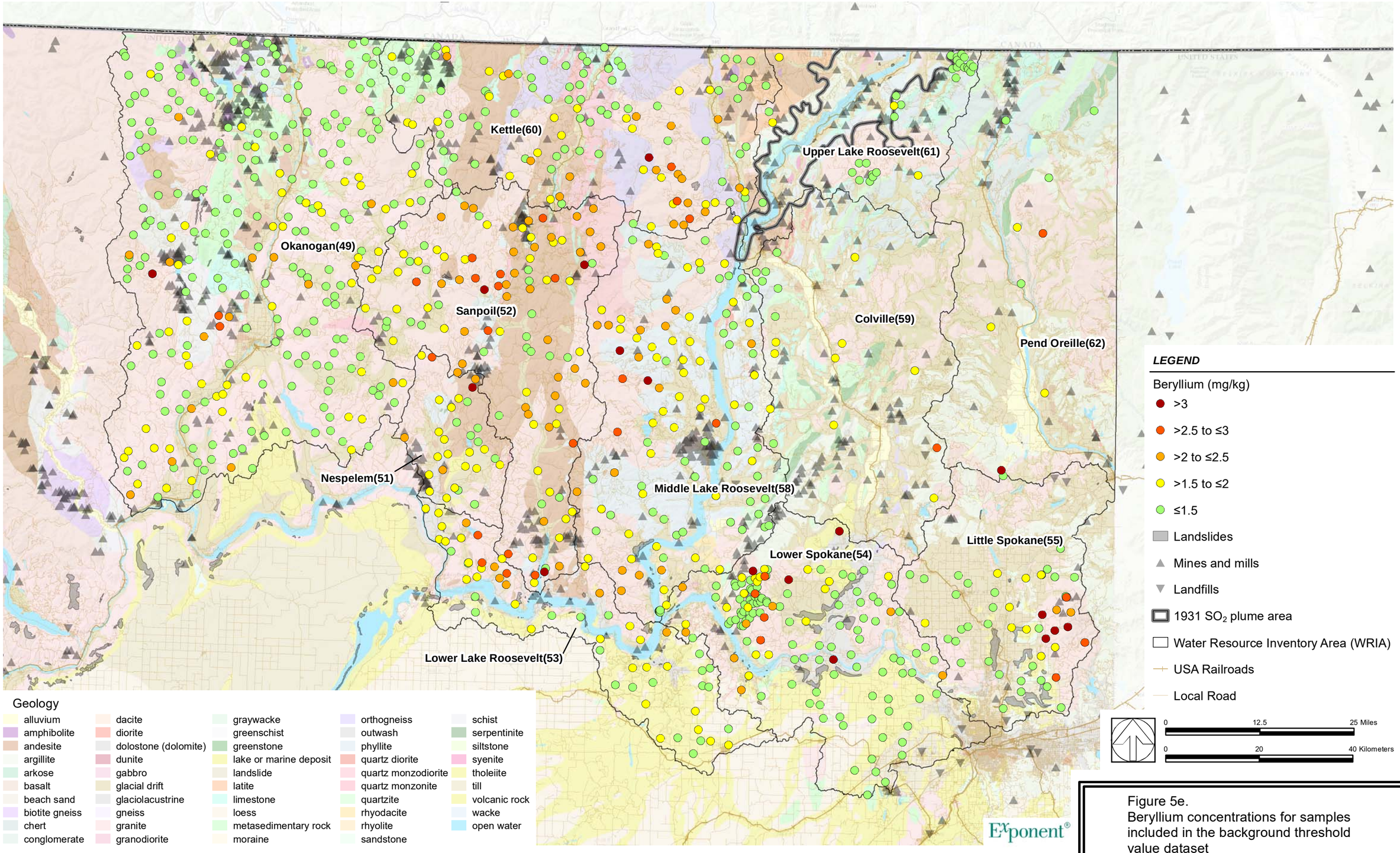


Figure 5e.
Beryllium concentrations for samples included in the background threshold value dataset

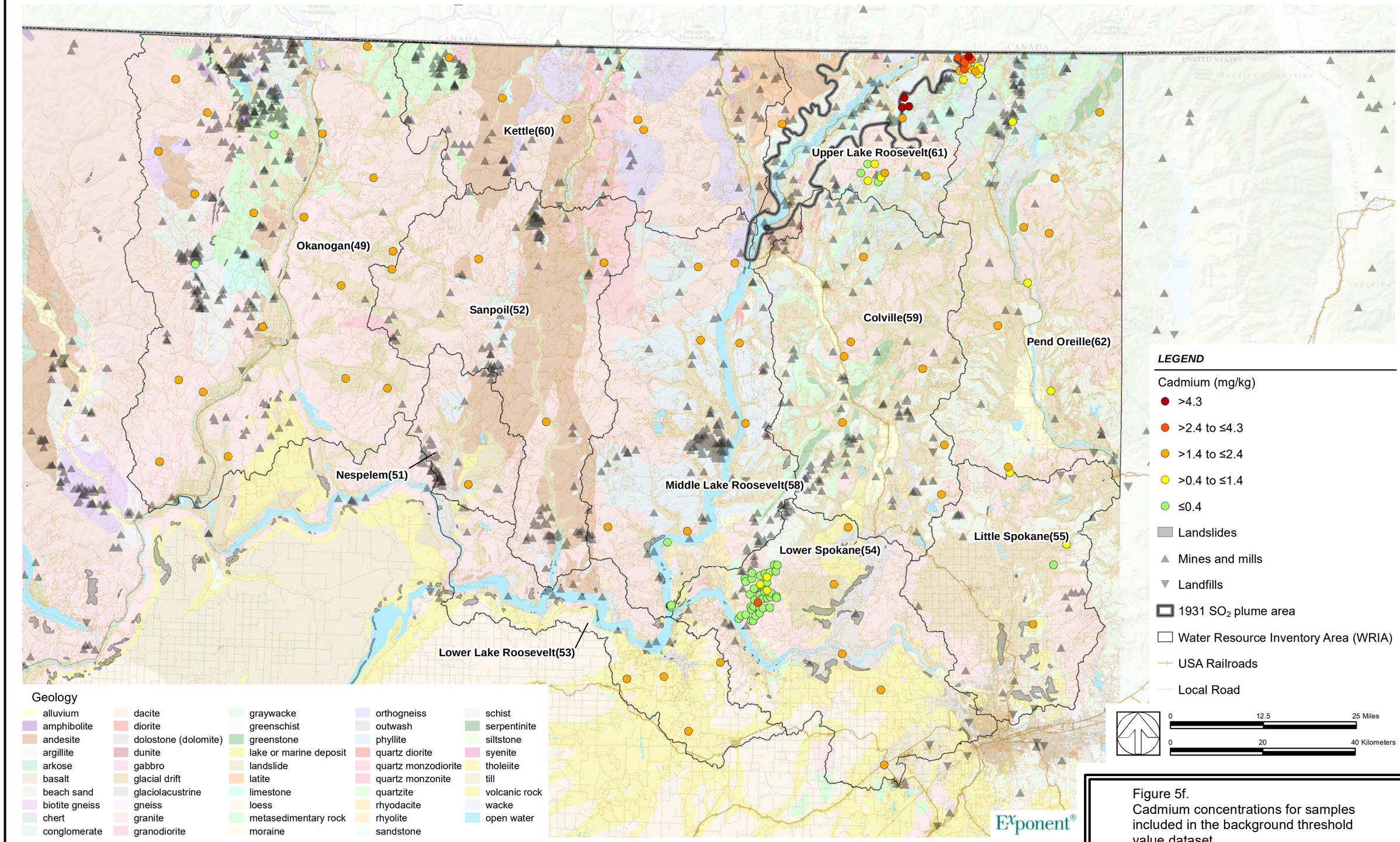


Figure 5f.
Cadmium concentrations for samples included in the background threshold value dataset

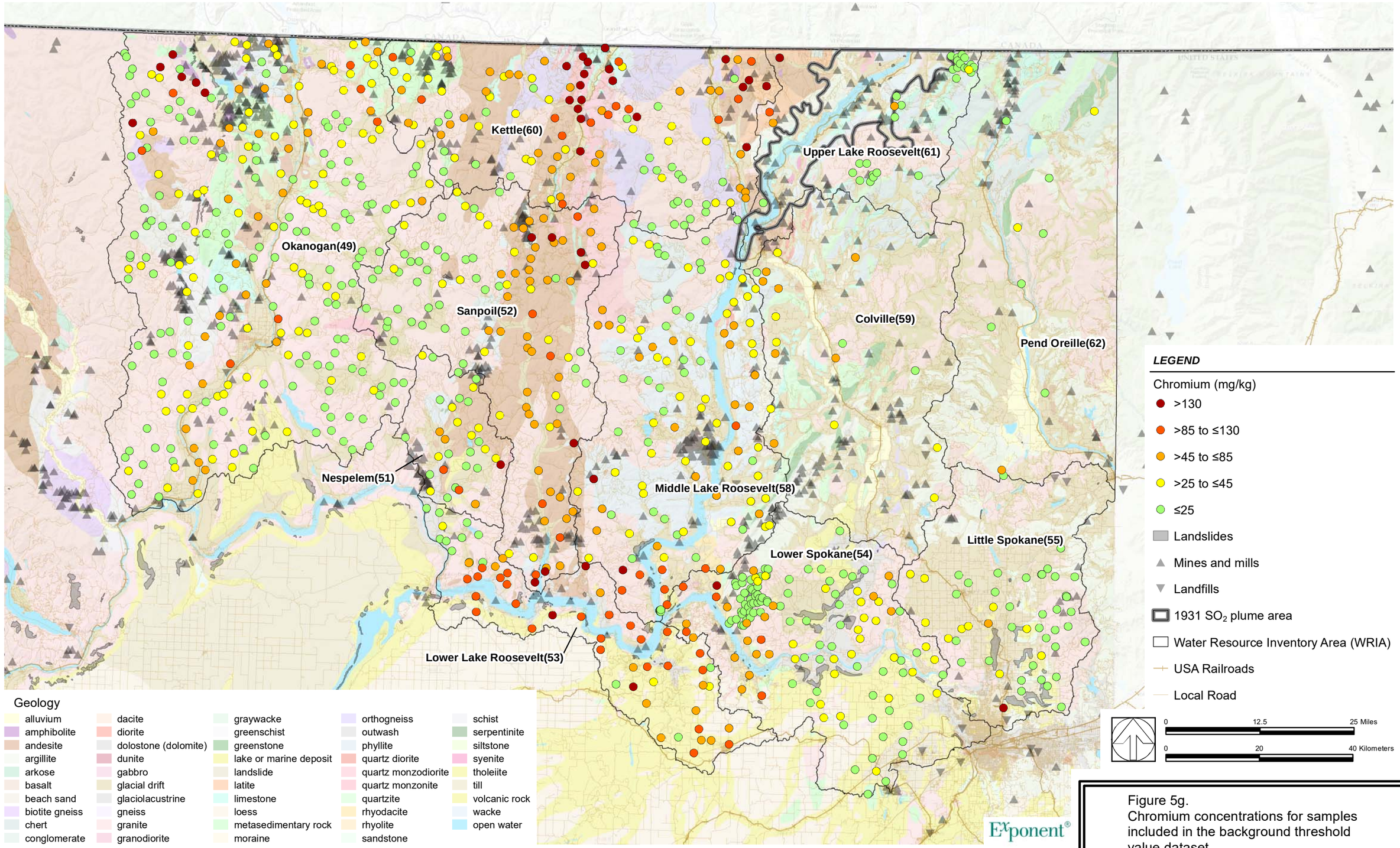


Figure 5g.
Chromium concentrations for samples included in the background threshold value dataset

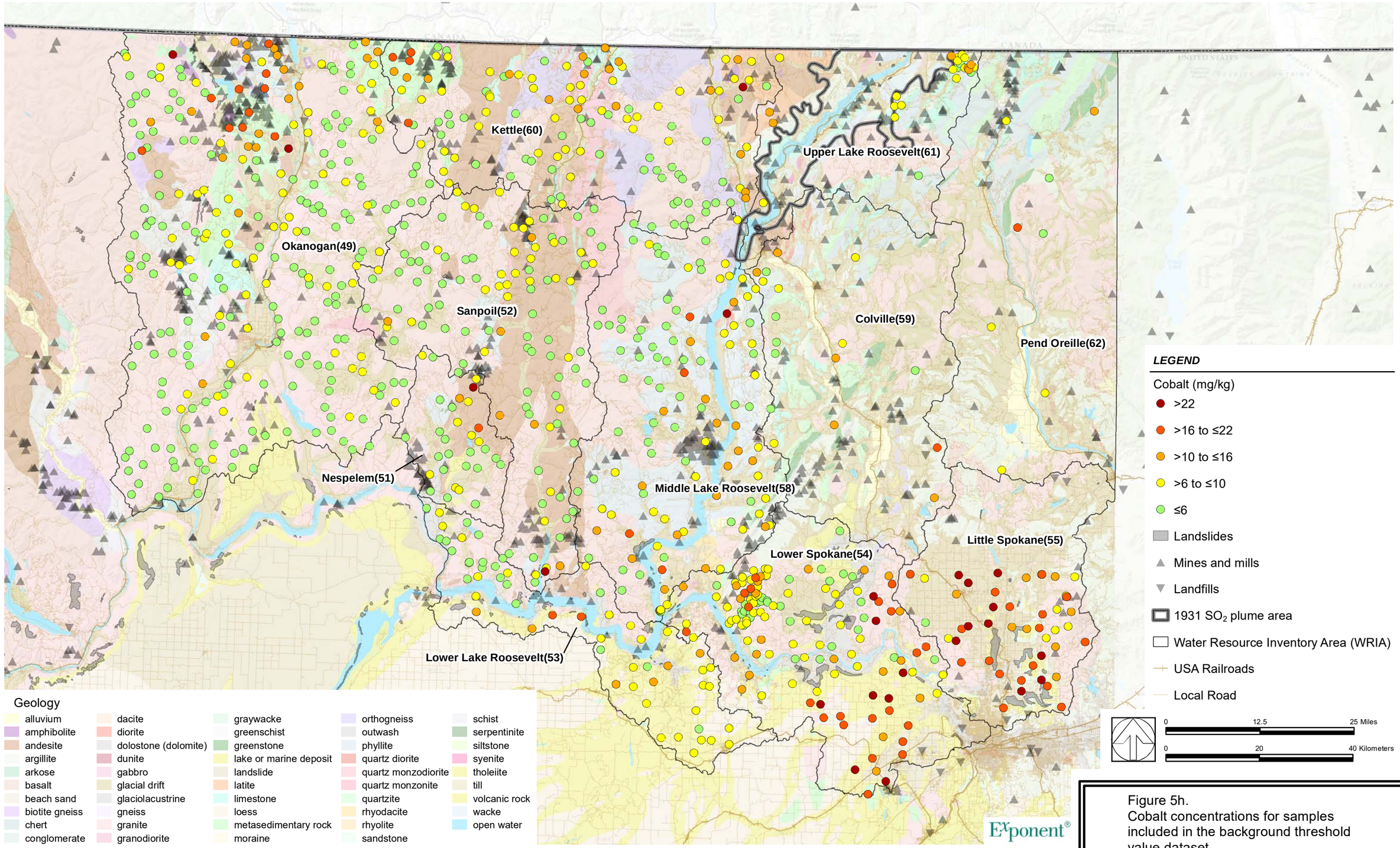


Figure 5h.
Cobalt concentrations for samples included in the background threshold value dataset

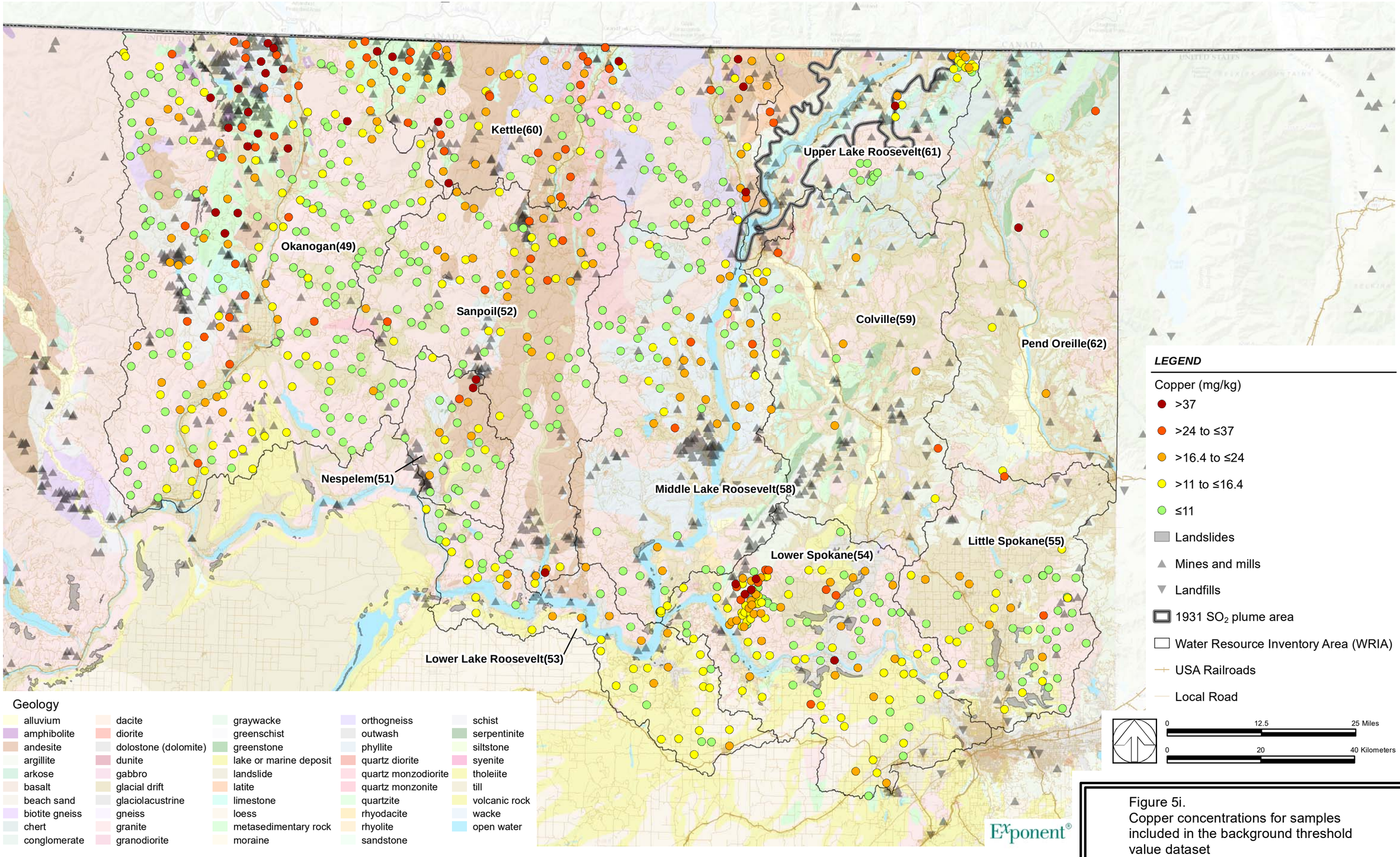


Figure 5i.
Copper concentrations for samples included in the background threshold value dataset

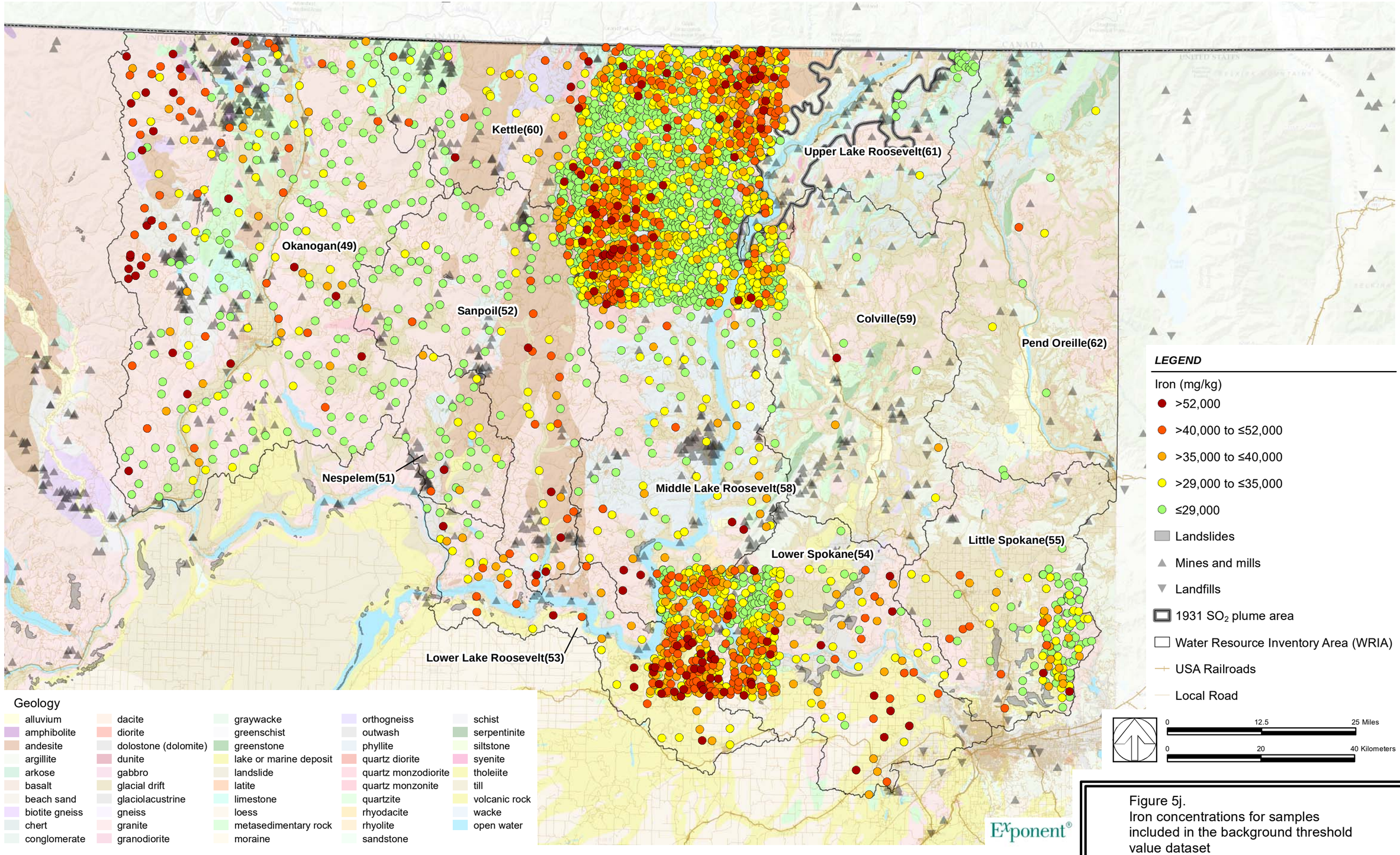


Figure 5j.
Iron concentrations for samples included in the background threshold value dataset

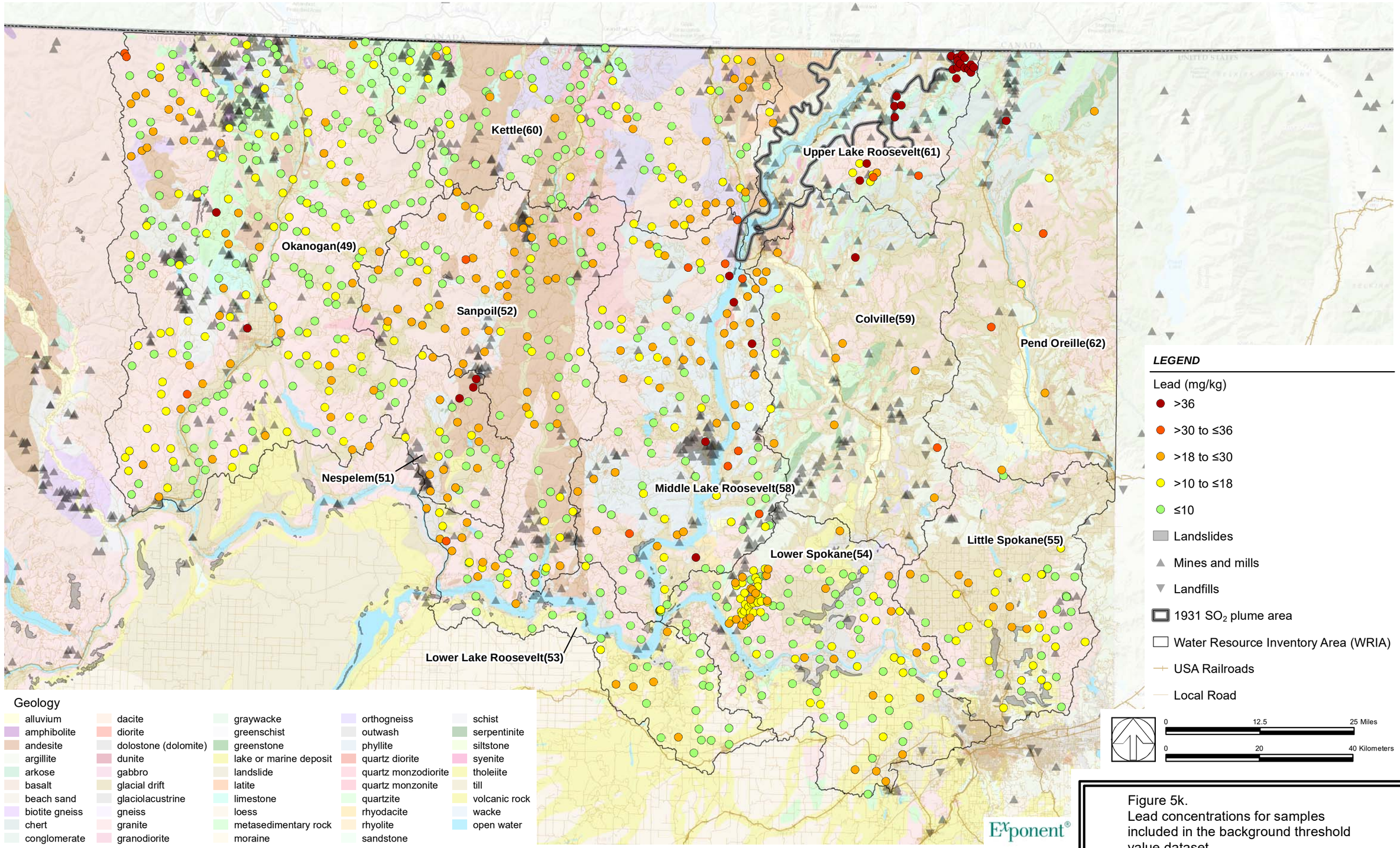


Figure 5k.
Lead concentrations for samples included in the background threshold value dataset

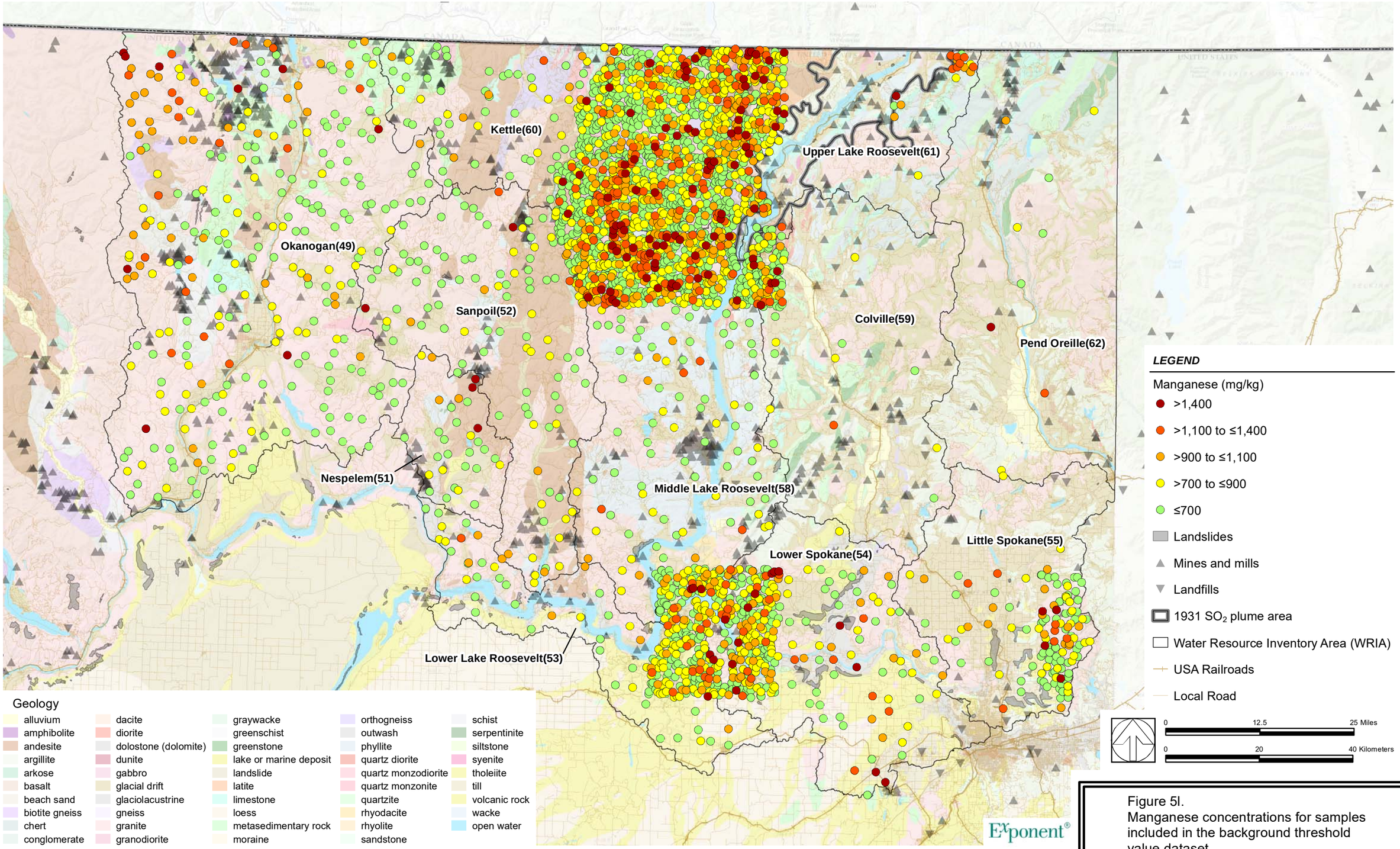


Figure 5l.
Manganese concentrations for samples included in the background threshold value dataset

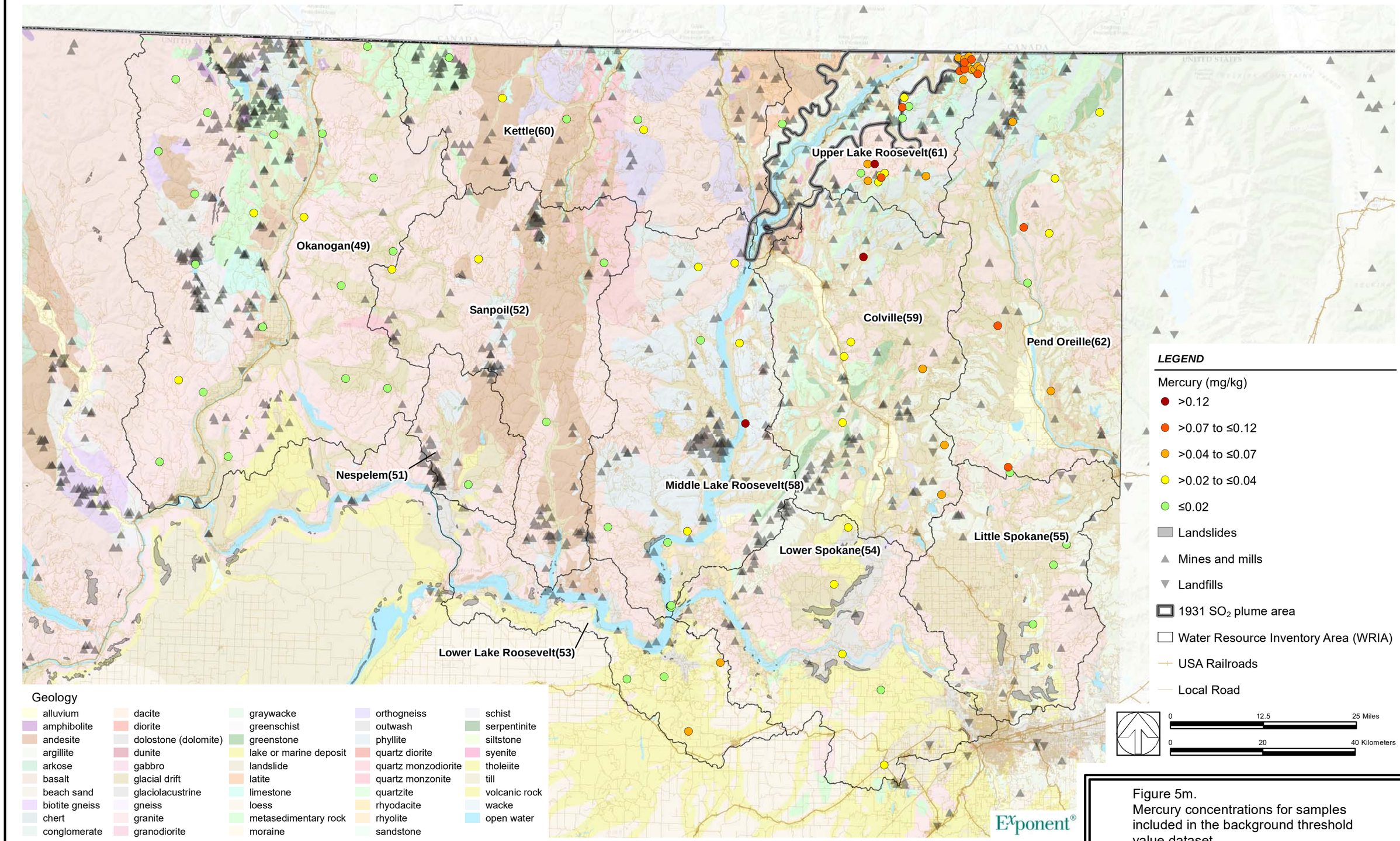


Figure 5m.
Mercury concentrations for samples included in the background threshold value dataset

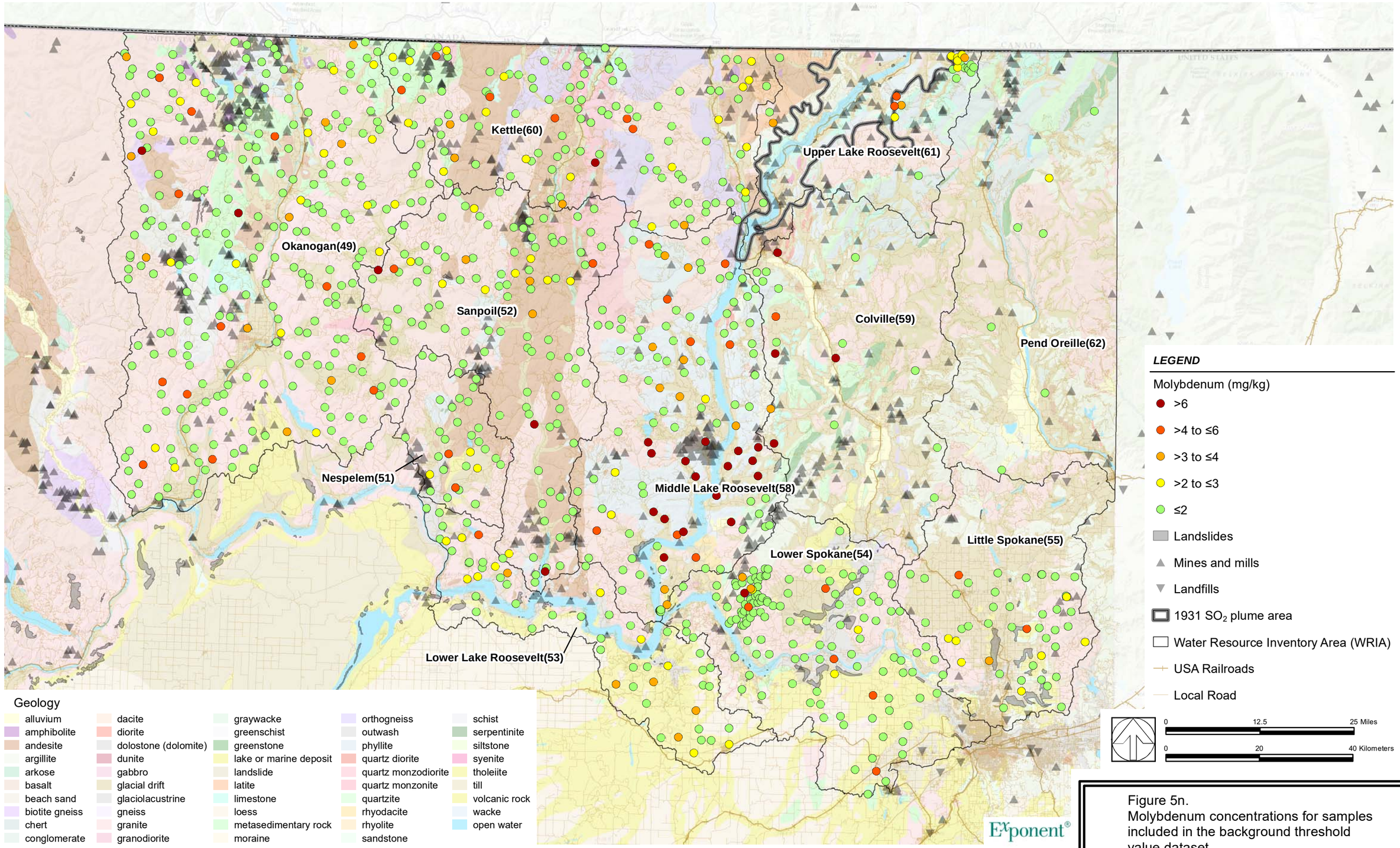


Figure 5n.
Molybdenum concentrations for samples included in the background threshold value dataset

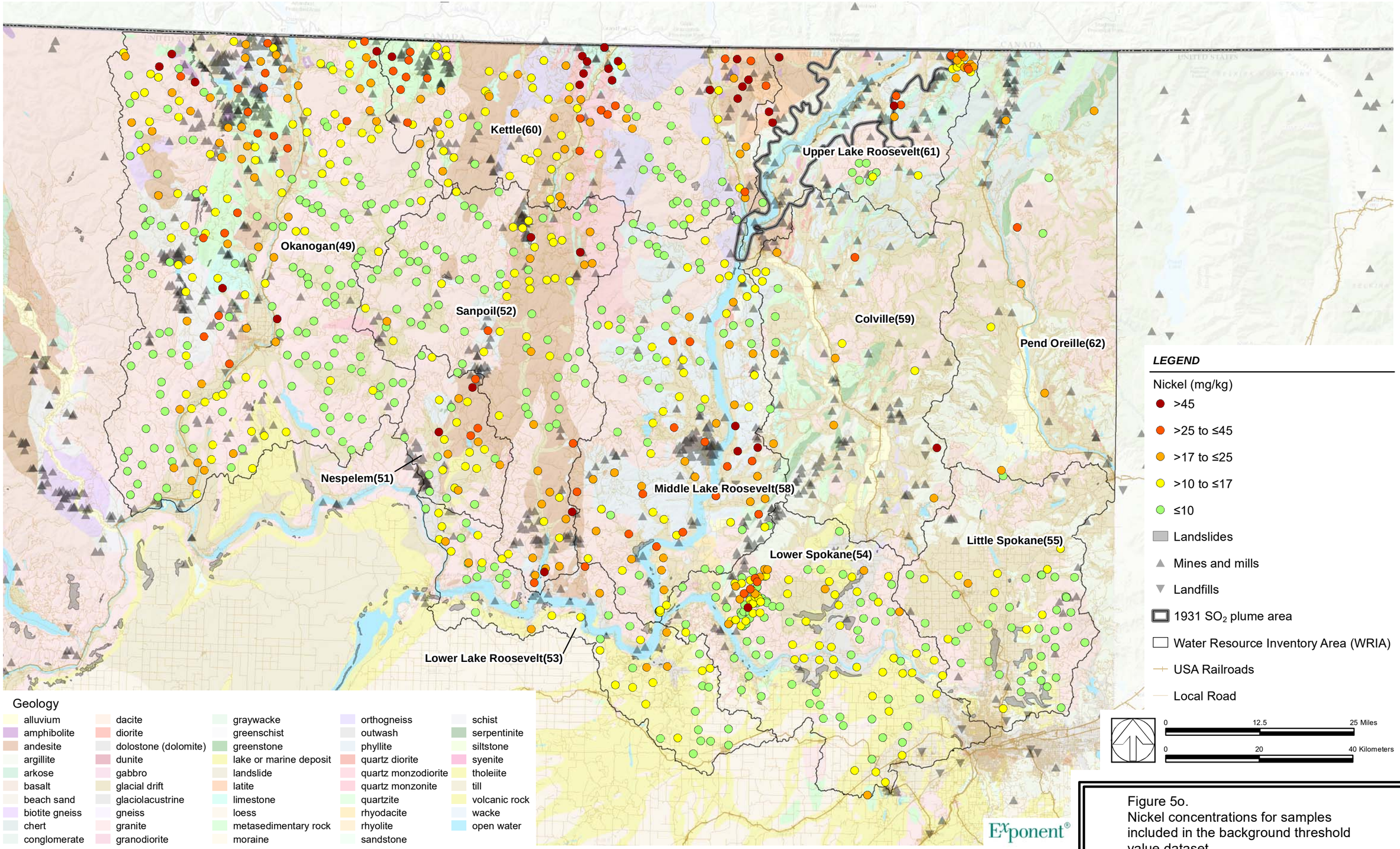


Figure 5o.
Nickel concentrations for samples included in the background threshold value dataset

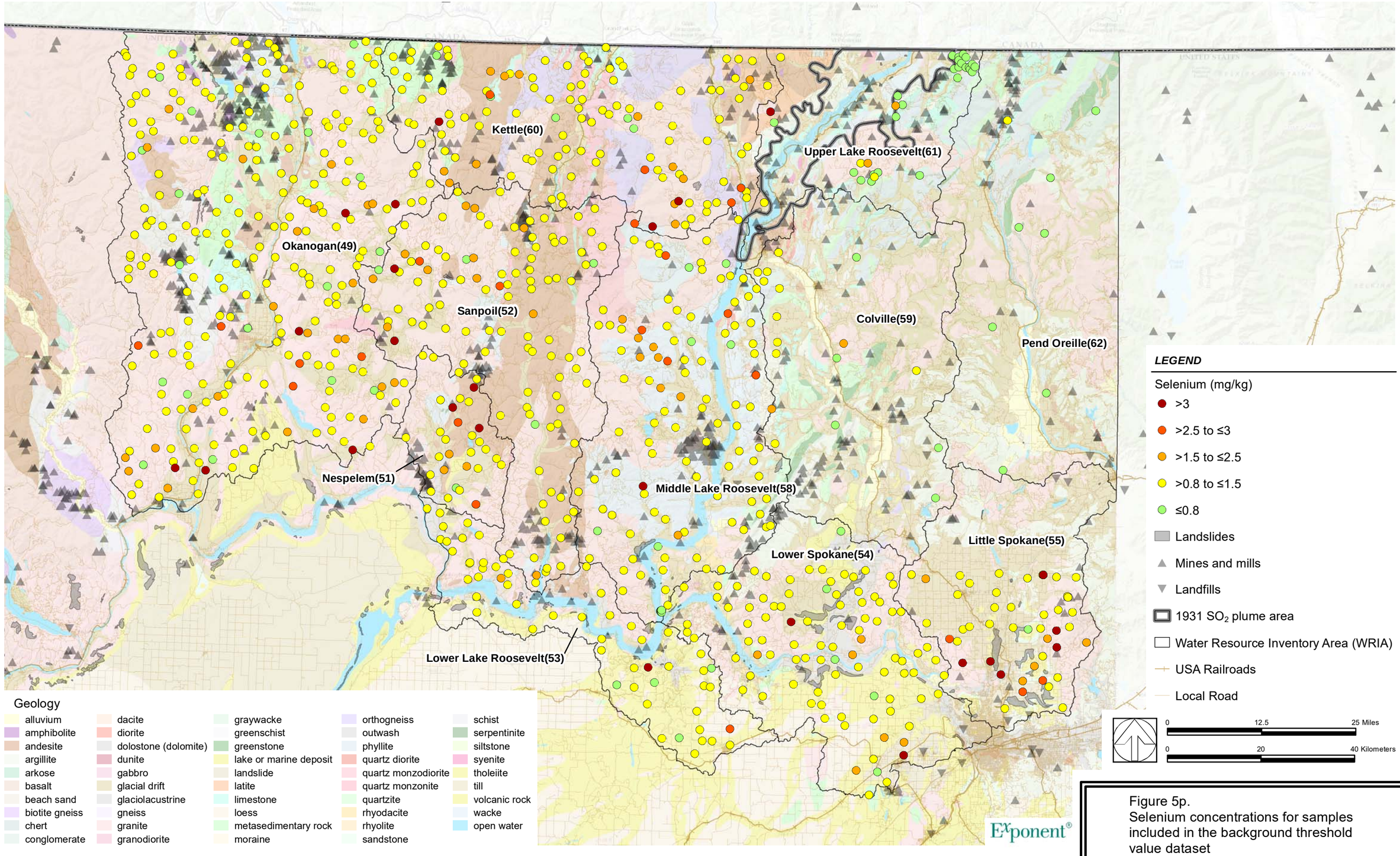


Figure 5p.
Selenium concentrations for samples included in the background threshold value dataset

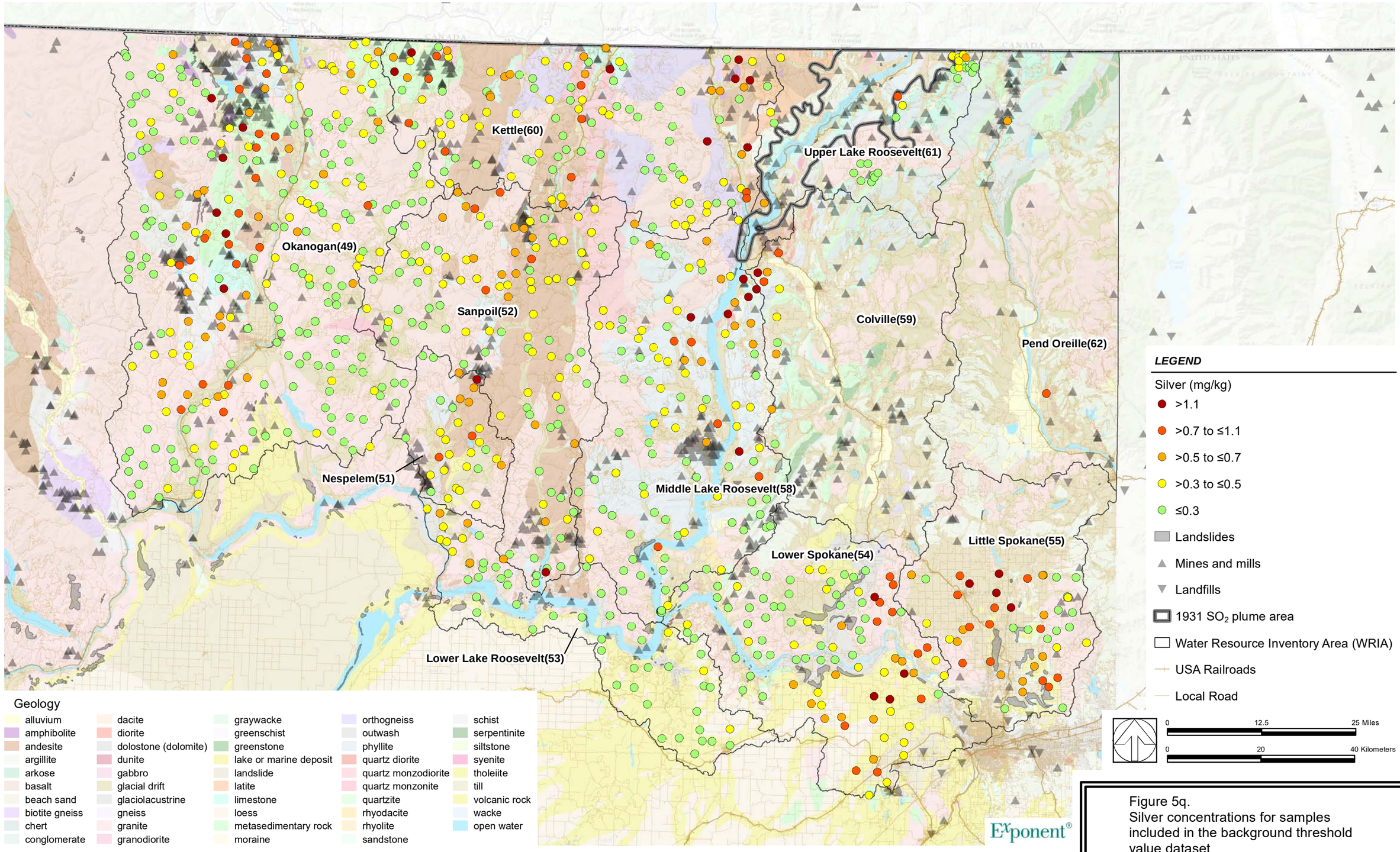


Figure 5q.
Silver concentrations for samples included in the background threshold value dataset

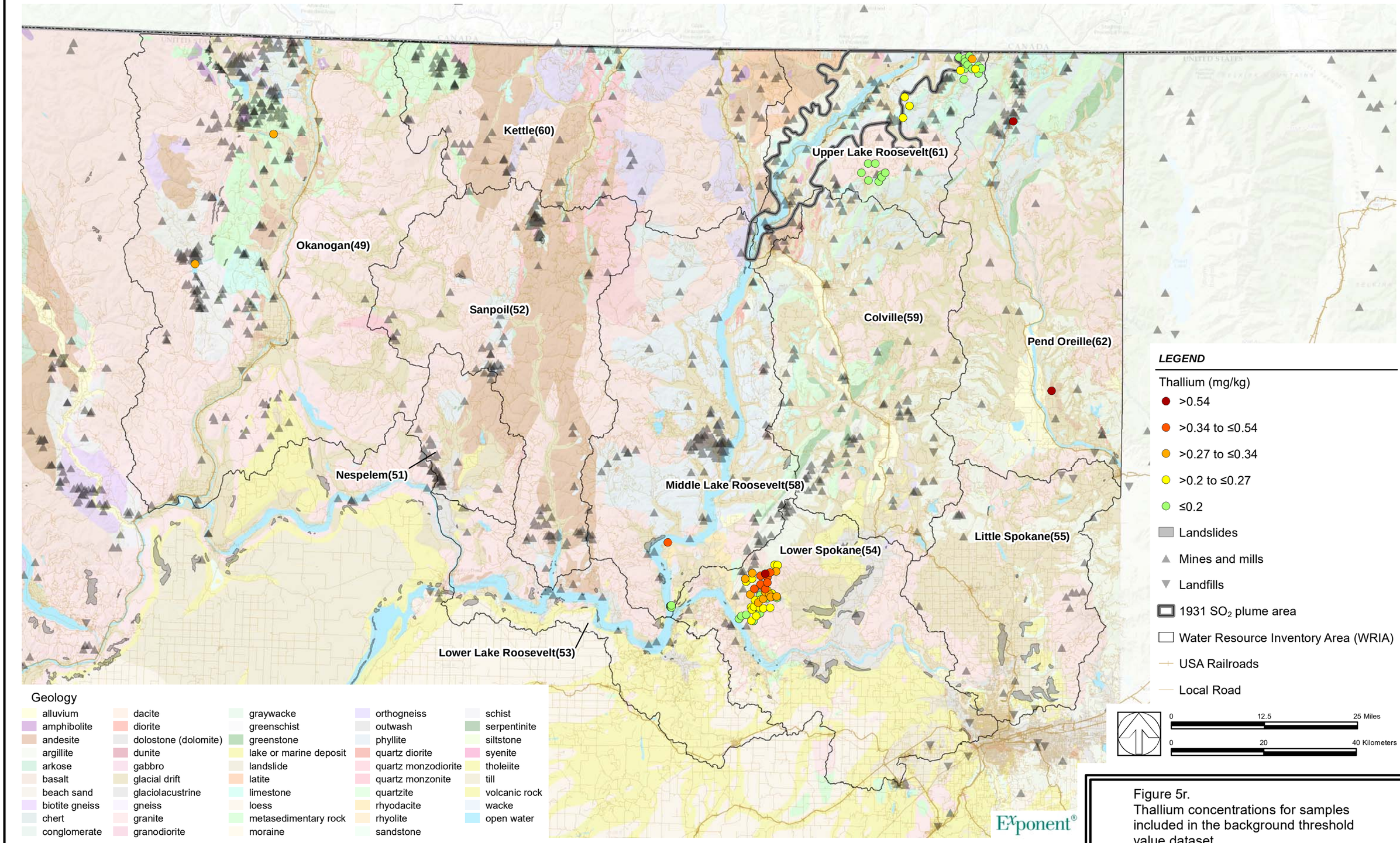


Figure 5r.
Thallium concentrations for samples included in the background threshold value dataset

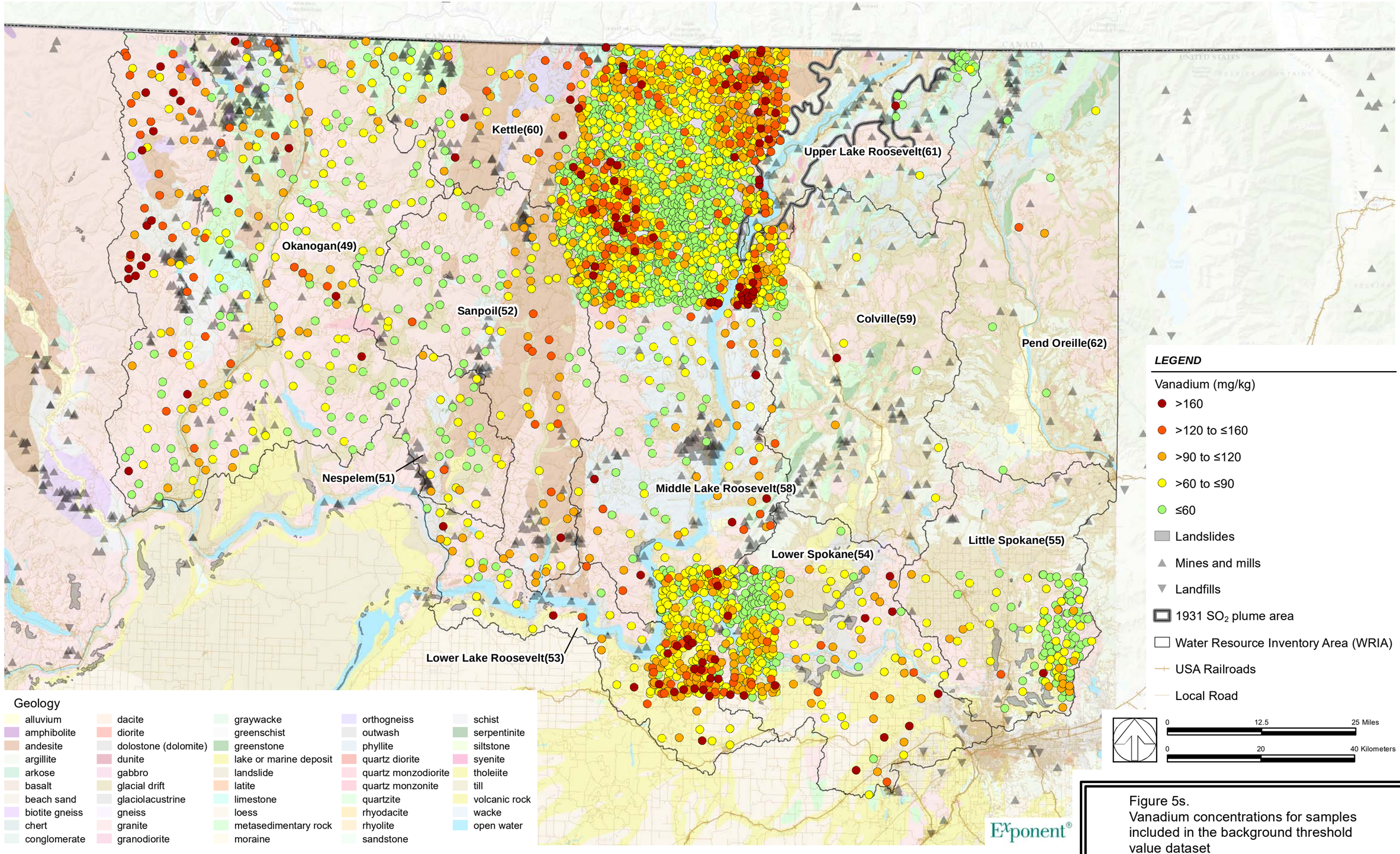


Figure 5s.
Vanadium concentrations for samples included in the background threshold value dataset

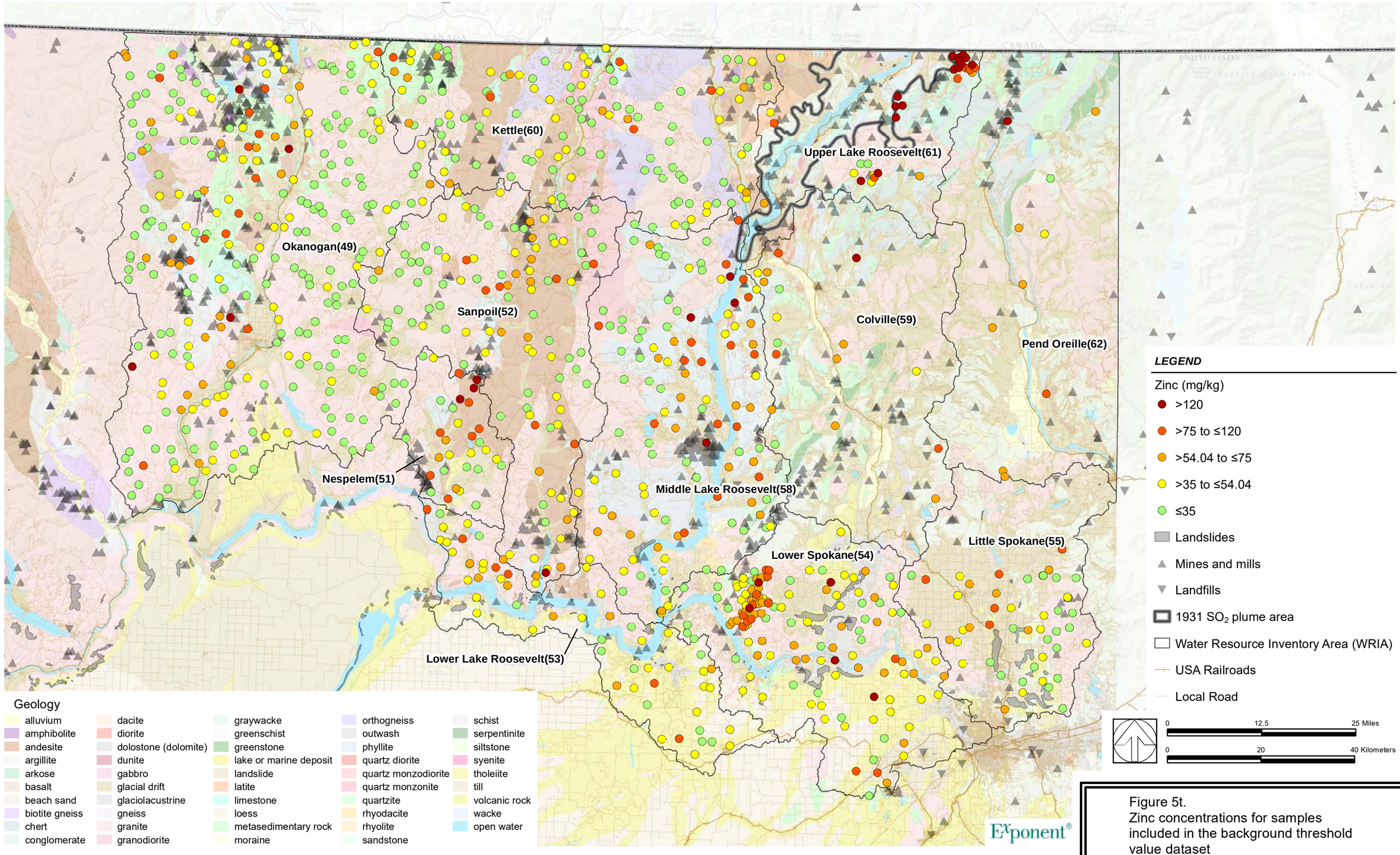


Figure 5t.
Zinc concentrations for samples included in the background threshold value dataset

DRAWN BY: Tyler Harris
SCALE: 1:195,422 when printed at 11x17
REVISED: 09/04/2019
FILE: M:\Projects\0493466 Teck Upper Columbia River\Maps\DQO\Calcareous Soils in Project Area.mxd

Talisman Mill
Talisman Mine
Kettle River WRIA (60)
First Thought Mine / Mill
STEVENS CO.
FERRY CO.
Kelly Hill Quarry
Northwest Marble
Northport Limestone
Young America Mine / Mill
Napoleon Mine / Mill
Bonanza
Dead Man Pit
Nancy Creek Pit
Marcus
Middle Lake Roosevelt WRIA (58)
Kettle Falls
Spanish Prairie
Mike Naff
Vap #2
Bonanza
Sheep Creek
Le Roi/Northport Smelter
Northport
Sherve Quarry
Black Rock
Deep Creek
Great Western
Last Chance Mine / Mill
Upper Lake Roosevelt WRIA (61)
Van Stone
Sierra Zinc
Aladdin Pit
Colville WRIA (59)
Admiral Mine / Mill
Anderson Calhoun Mine / Mill
Wildcat
Gladstone
Electric Point
STEVENS CO.
PEND OREILLE CO.
Pend Oreille WRIA (62)
G & A Gravel
0 1.25 2.5 5 Miles
N

Source: Esri - World Topoographic Map; NAD 1983 UTM Zone 11N

Legend

- Active Mine or Quarry
- Inactive Mine or Quarry
- Inactive Mill
- Inactive Smelter
- City/Town
- 1931 SO2 Plume Area
- Water Resource Inventory Area (WRIA)
- WA County Boundary

ADA Decision Unit

- Sampled
- Not sampled

Relict Floodplain Decision Unit

- Sampled
- Not sampled

Soil Parent Material

- Other calcareous soil
- Volcanic ash and loess over calcareous glacial till
- Volcanic ash over silty glaciolacustrine deposits

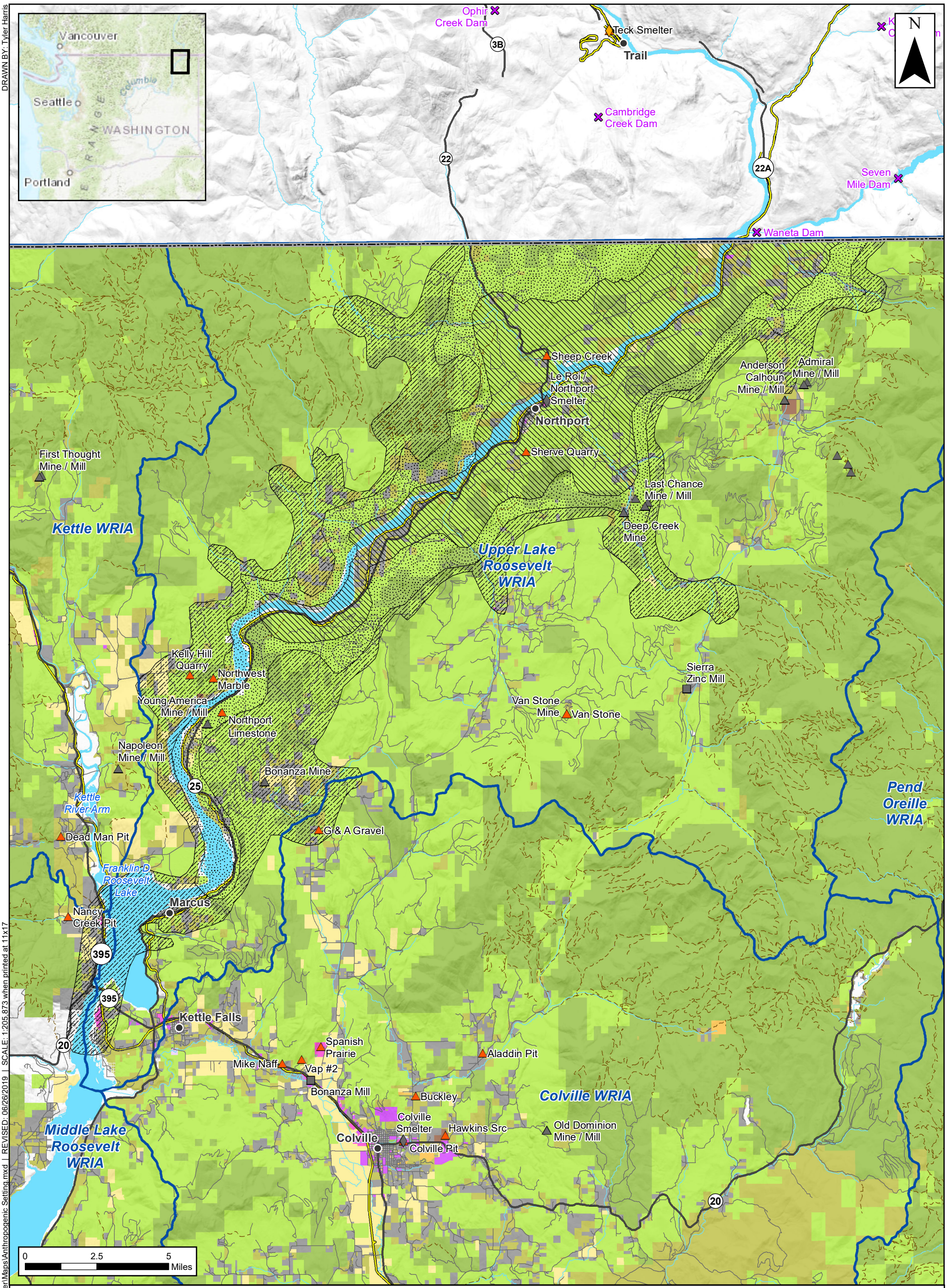
Notes:

Calcareous Soils identified using data from the USDA Natural Resources Conservation Service SSURGO Database.

Figure 6
Mines and Calcareous Soils in Vicinity of The 1931 SO2 Plume Area
Teck American Incorporated
Upper Columbia River, Washington

Environmental Resources Management
www.erm.com
ERM

DRAWN BY: Tyler Harris



- City / Town
- Major Dam

Mines, Mills & Smelters

- Active Mine or Quarry
- Active Mill
- Active Smelter
- Inactive Mine or Quarry
- Inactive Mill
- Inactive Smelter

- Primary Road
- Secondary Road
- Local, Private Road
- Unpaved Road
- Railway
- International Border
- Major Stream
- Open Water
- Water Resource Inventory Area

General Land Use

- Residential
- Manufacturing
- Retail; Services
- Transportation; Utilities
- Mining
- Culture; Recreation
- Agriculture
- Parks; Undeveloped
- Public Forest
- Private Forest

1931 SO_2 Plume

- Zone 1
- Zone 2
- Zone 3

Figure 7
Land use and mining within the 1931 SO_2 Plume Area
Teck American Incorporated
Upper Columbia River, Washington

Environmental Resources Management
www.erm.com
ERM

Source: Esri - World Topoographic Map; NAD 1983 UTM Zone 11N

FILE: M:\Projects\0493466 Teck Upper Columbia River\Maps\Anthropogenic Setting.mxd | REVISED: 06/26/2019 | SCALE: 1:205,873 when printed at 11x17

General land use codes used in Figure 7

General Land Use Category	Code	Description
Residential	11	Household, single family units
	12	Household, 2-4 units
	13	Household, multiunits (5 or more)
	14	Residential condominiums
	15	Mobile home parks or courts
	16	Hotels/motels
	17	Institutional lodging
	18	All other residential not elsewhere coded
	19	Vacation and cabin
Manufacturing	21	Food and kindred products
	22	Textile mill products
	23	Apparel and other finished products made from fabrics, leather, and similar materials
	24	Lumber and wood products (except furniture)
	25	Furniture and fixtures
	26	Paper and allied products
	27	Printing and publishing
	28	Chemicals
	29	Petroleum refining and related industries
	30	Rubber and miscellaneous plastic products
	31	Leather and leather products
	32	Stone, clay and glass products
	33	Primary metal industries
	34	Fabricated metal products
	35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks-manufacturing
	36	Not presently assigned
	37	Not presently assigned
	38	Not presently assigned
	39	Miscellaneous manufacturing
Transportation; Utilities	41	Railroad/transit transportation
	42	Motor vehicle transportation
	43	Aircraft transportation
	44	Marine craft transportation
	45	Highway and street right of way
	46	Automobile parking
	47	Communication
	48	Utilities
	49	Other transportation, communication, and utilities not classified elsewhere
Retail; Services	50	Condominiums - other than residential condominiums
	51	Wholesale trade
	52	Retail trade - building materials, hardware, and farm equipment
	53	Retail trade - general merchandise
	54	Retail trade - food
	55	Retail trade - automotive, marine craft, aircraft, and accessories
	56	Retail trade - apparel and accessories
	57	Retail trade - furniture, home furnishings and equipment
	58	Retail trade - eating and drinking
	59	Other retail trade
	61	Finance, insurance, and real estate services
	62	Personal services
	63	Business services
	64	Repair services
	65	Professional services

General land use codes used in Figure 7 (Continued)

General Land Use Category	Code	Description
Retail; Services (*Cont.*)	66	Contract construction services
	67	Governmental services
	68	Educational services
	69	Miscellaneous services
Culture; Recreation	71	Cultural activities and nature exhibitions
	72	Public assembly
	73	Amusements
	74	Recreational activities
	75	Resorts and group camps
	77	Not presently assigned
	78	Not presently assigned
	79	Other cultural, entertainment, and recreational
	84	Fishing activities and related services
Agriculture	81	Agriculture (not classified under current use law)
	82	Agriculture related activities
	83	Agriculture classified under current use chapter 84.34 RCW
Mining	85	Mining activities and related services
Parks; Undeveloped	76	Parks
	94	Open space land classified under chapter 84.34 RCW, also public owned land; wildlife refuges, DNR range land, other open space
	91	Undeveloped land
	99	Other undeveloped land
Public Forest	87	Public forest land
Private Forest	88	Designated forest land under chapter 84.33 RCW
	92	Noncommercial forest
	95	Timberland classified under chapter 84.34 RCW

Notes: Land use codes from Ecology (1994)

Tables

List of Tables

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Table 4. Count of samples by assessment variables in Tier IIIB dataset

Table 5. Background threshold values for screened background samples

Table 1. Sample locations in Tier I and Tier IIB datasets with depth ≤24 in.

Source Group	Study Name or Related Document	Study ID	Years Collected		Locations			
					Soil		NURE Sediment	
			Start	End	Tier I	Tier IIB	Tier I	Tier IIB
USEPA LOE Memorandum								
	Church et al. (2008)	CHURC08A	1979	1979	4	1	66	42
	Ecology (1994)	ECOLO94A	1990	1992	4	4	0	0
	Ecology (2013a)	HARTC13A	2012	2012	105	0	0	0
	Ecology (2013b)	HARTC13C	2011	2012	174	8	0	0
	Randolph Construction Services (2011)	SHANN11A	2011	2011	51	0	0	0
	Smith et al. (2013)	SMITH13A	2010	2010	18	4	0	0
	USEPA (2002b)	USEPA02A	2001	2001	1	0	0	0
	USEPA (2002b,c)	USEPA2001Mines/Mills	2001	2001	121	1	0	0
	Wells (2015)	WELLS15A	2015	2015	23	21	0	0
Referenced in TAI Studies								
	Goodarzi et al. (2002)	GOODA02A	1997	1997	1	0	0	0
In the UCR RI/FS Database								
	Stevens County (2008a)	WADOE_2007b	2007	2007	89	0	0	0
	Stevens County (2008b)	WADOE_2007c	2007	2007	186	0	0	0
	TAI (2015a)	USEPA_2015_TCRASoil	2015	2015	500	0	0	0
	TAI (2015b)	Teck_2014_UplandSoil	2014	2014	215	31	0	0
	TAI (2016a)	Teck_2015_Bossburg	2015	2015	32	0	0	0
	TAI (2016b)	Teck_2016_ResSoil	2016	2016	884	0	0	0
	USEPA (2005)	LeRoi2005	2004	2004	312	0	0	0
	USEPA (2016b)	USEPA_2014_ResSoil	2014	2014	579	0	0	0
NURE-HSSR Dataset								
	Smith (2006)	NURE Seds	1979	1979	1,476	1,086	3,023	2,037
USGS Datasets								
	USGS (2008b)	geochem-fU53	1977	1979	12	8	80	54
Total Locations[a]					4,787	1,164	3,169	2,133

Notes on next page.

Table 1. (Continued)

Notes: [a] Samples from some locations were analyzed in more than one study (i.e., NURE-HSSR samples that were reanalyzed).

NURE-HSSR - National Uranium Resource Evaluation-Hydrogeochemical and Stream Sediment Reconnaissance
LOE - level of effort
RI/FS - remedial investigation/feasibility study
TAI - Teck American Incorporated
UCR - Upper Columbia River
USEPA - U.S. Environmental Protection Agency
USGS - U.S. Geological Survey

Table 2. Locations screened out using location-based criteria

		Number of Locations										
			Outside the 1931 SO_2 Plume									
						Mines and Mills						
Study ID	Locations Total	1931 SO_2 Plume Area	Road <50 m	Railway <50 m	Landfill <500 m	Past Producer <500 m	Producer <500 m	Plant <500 m	Unknown <500 m	Landslide Area	100-Year Floodplain	Additional Review[a]
CHURC08A	70	0	26	0	0	0	0	0	0	0	0	1
ECOLO94A	4	0	0	0	0	0	0	0	0	0	0	0
geochem-fU53	92	3	24	2	0	0	1	0	0	1	0	0
GOODA02A	1	1	0	0	0	0	0	0	0	0	0	0
HARTC13A	105	105	0	0	0	0	0	0	0	0	0	0
HARTC13C	174	0	80	0	0	23	0	0	0	0	0	70
LeRoi2005	312	311	1	0	0	0	0	0	0	0	0	0
NURE Seds	4,499	112	1,145	18	1	41	8	0	17	1	19	0
SHANN11A	51	48	3	0	0	0	0	0	0	0	0	0
SMITH13A	18	0	13	0	0	0	0	0	0	0	0	0
Teck_2014_UplandSoil	215	180	4	0	0	0	0	0	0	0	0	0
Teck_2015_Bossburg	32	32	0	0	0	0	0	0	0	0	0	0
Teck_2016_ResSoil	884	884	0	0	0	0	0	0	0	0	0	0
USEPA_2014_ResSoil	579	579	0	0	0	0	0	0	0	0	0	0
USEPA_2015_TCRASoil	500	500	0	0	0	0	0	0	0	0	0	0
USEPA02A	1	0	1	0	0	1	1	0	0	0	0	0
USEPA2001Mines/Mills	121	33	42	0	0	45	15	8	0	0	0	15
WADOE_2007b	89	89	0	0	0	0	0	0	0	0	0	0
WADOE_2007c	186	53	132	0	0	0	0	0	30	0	0	0
WELLS15A	23	2	0	0	0	0	0	0	0	0	0	0

Notes: [a] HARTC13C and USEPA2001Mines/Mills samples underwent additional review because of proximity to the Van Stone mine using Figures 5through 7 in Ecology (2013b).

[a] The remaining samples from USEPA2001Mines/Mills and CHURC08A were reviewed using Google Earth for proximity to nearby mines and mills in case the 500 m setback for plants and producers was insufficient.

NURE-HSSR - National Uranium Resource Evaluation-Hydrogeochemical and Stream Sediment Reconnaissance

Table 3. Number of sample results for the metals and metalloids in the Tier IIIA dataset

Study ID	Study Name or Related Document	Analytical Preparation Method Group	Mercury	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
CHURC08A	Church et al. (2008)	Partial Digestion	–	43	–	43	43	43	43	43	43	43	43	43	43	43	43	–	–	43	43	43
ECOLO94A	Ecology (1994)	Partial Digestion		4	–	4	–	4	4	4	–	4	4	4	4	–	4	–	–	–	–	4
		Mercury	4																			
geochem-fU53	USGS (2008b)	Total Digestion		62	–	62	62	62	62	62	62	62	62	62	62	63	62	62	–	–	62	62
		Mercury	62																			
HARTC13C	Ecology (2013b)	Partial Digestion		–	8	8	–	8	8	8	–	8	–	8	–	–	8	8	8	8	–	8
		Mercury	8																			
NURE Seds	Smith (2006)	Total Digestion		–	–	633	777	777	–	782	779	736	–	777	–	782	778	785	821	–	–	779
		INAA		3,080									3,031		3,074						3,061	
SMITH13A	Smith et al. (2013)	Total Digestion		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
		Mercury	6																			
Teck_2014	TAI (2015b)	Partial Digestion		40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
_UplandSoil		Mercury	40																			
USEPA2001	USEPA (2002c)	Partial Digestion		1	1	1	1	1	1	1	1	1	1	1	1	–	1	1	1	1	1	1
Mines/Mills		Mercury	1																			
WELLS15A	Wells (2015)	LOI+Digestion	–	21	–	–	–	–	21	21	–	21	21	21	21	–	21	–	–	–	–	21

Notes: Total metals is subdivided into INAA and total digestion for additional detail
INAA - irradiated neutron activation analysis
LOI - loss on ignition

Table 4. Count of samples by assessment variables in Tier IIIB dataset

		<2 mm Soil						<150 µm Soil and Sediment			
Assessment Variable	Description	Teck_2014_ UplandSoil[a]	ECOLO94A[b]	HARTC13C[c]	SMITH13A[d]	USEPA2001 Mines/Mills[e]	WELLS15A[f]	Teck_2014_ UplandSoil[a]	NURE Seds[i]	CHURC08A[g]	geochem-fu53[h]
Sample type											
30-point	Incremental composite sampling, 25 acres	23						17			
5-point or more	Multipoint composite		4				21		3,123	43	62
Single	No compositing			8	6[j]	1					
WRIA											
49	Okanogan				2				269		18
51	Nespelem								30		1
52	Sanpoil								301		4
53	Lower Lake Roosevelt								178		4
54	Lower Spokane								345	43	5
55	Little Spokane		3						121		1
58	Middle Lake Roosevelt	6			2		1		550		7
59	Colville						2		76		7
60	Kettle						5		1,157		5
61	Upper Lake Roosevelt	17		8			8	17	96		4
62	Pend Oreille		1		2	1	5				6

Notes:
[a] TAI (2015b)
[b] Ecology (1994)
[c] Ecology (2013b)
[d] Smith et al. (2013)
[e] USEPA (2002c)
[f] Wells (2015)
[g] Church et al. (2008)
[h] USGS (2008b)
[i] Smith (2006)
[j] Although Smith et al. (2013) considers two of the samples collected at one of these locations a composite, it is a vertical composite of the A horizon over a few inches and is more like the grab samples discussed here.

WRIA - Water Resource Inventory Area

Table 5. Background threshold values for screened background samples

Metal/ Metalloid	Total Metals (mg/kg)	Partial Digestion (mg/kg)	Mercury (mg/kg)
Aluminum	73,800	40,500	
Antimony	3.0	0.41	
Arsenic	12.0 / 12.0 [a]	98.4 / 80.6 / 23.3 [a,b]	
Barium	722	395	
Beryllium	3.0 / 3.0 [a]	2.4	
Cadmium	2.0 / 0.54 [a]	0.74	
Chromium	155 / 140 [a]	27.1 / 23.8 [a]	
Cobalt	22.0 / 22.0 [a]	20.4	
Copper	37.0	41.5	
Iron	52,500	31,200	
Lead	30.0 / 30.0 [a]	27.2	
Manganese	1,380	1,240	
Mercury			0.14 / 0.12 [a]
Molybdenum	6.0	3.5 / 1.4 [a]	
Nickel	46.0 / 45.0 [a]	35.0	
Selenium	3.0	0.098 / 0.10 [a]	
Silver	1.1 / 1.1 [a]	0.078	
Thallium	1.1	0.56	
Vanadium	160 / 160 [a]	47.5	
Zinc	99.0 / 101 [a]	111	

Notes: Concentrations reported in mg/kg

[a] BTVs with and without outliers are indicated with a forward slash (for example, 2.0 / 0.54, respectively).

[b] Samples identified for exclusion by EPA based on multivariate analyses and location (USEPA 2020c).

BTV - background threshold value

Attachment A

Final DQOs, Response to EPA's Consolidated Comments, and EPA Approval

Attachment A-1

Final Data Quality Objectives for Determination of Background Metal and Metalloid Concentrations in Upland Soil (TAI 2018b)

Final Data Quality Objectives for Determination of Background Metal and Metalloid Concentrations in Upland Soil

Introduction

The upland soil background assessment will provide information on the range of soil concentrations for metals and metalloids[1] that are representative of natural background in and around the Upper Columbia River (UCR) Site (hereafter the Site[2]). This assessment is one of numerous tasks to be completed as part of the UCR remedial investigation and feasibility study (RI/FS) and baseline ecological risk assessment being conducted by Teck American Incorporated (TAI). This assessment will also inform the human health risk assessment that is being conducted by the U.S. Environmental Protection Agency (EPA) (USEPA 2006a, 2016). The purpose of this document is to summarize the data quality objectives (DQOs) identified for the upland soil background assessment. The primary objective for this assessment is to ascertain the natural background soil concentrations as defined by Washington State (WAC 173-340-200[3])

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[1] The metals and metalloids assessed will include those listed in the Upper Columbia River Soil Study (TAI 2015) Table 2-1, which are aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc. Thus, in this document "metals and metalloids" refers only to this list of elements. These metals and metalloids were identified as chemicals of interest for the referenced soil study and therefore all of these elements will be included in the assessment of natural background soil concentrations to provide the appropriate context for interpretation of the soil analytical results. Additionally, cation exchange capacity (CEC) is calculated from potassium, magnesium, calcium, sodium, and hydrogen (pH) concentrations in soils, and can be used (along with pH) to understand the natural bioavailability of metals in soils in the study area.

[2] The UCR Site as defined within the June 2, 2006 Settlement Agreement (USEPA 2006a) is the areal extent of hazardous substances contamination within the United States in or adjacent to the Upper Columbia River, including the Franklin D. Roosevelt Lake, from the U.S.-Canada border to the Grand Coulee Dam, and those areas in proximity to the contamination that are suitable and necessary for implementation of response actions.

[3] WAC 173-340-200:

"Natural background" means the concentration of hazardous substance consistently present in the environment that has not been influenced by localized human activities. For example, several metals and radionuclides naturally occur in the bedrock, sediments, and soils of Washington state due solely to the geologic processes that formed these materials and the concentration of these hazardous substances would be considered natural background. Also, low concentrations of some particularly persistent organic compounds such as polychlorinated biphenyls (PCBs) can be found in surficial soils and sediment throughout much of the state due to global distribution of these hazardous substances. These low concentrations would be considered natural background. Similarly, concentrations of various radionuclides that are present at low concentrations throughout the state due to global distribution of fallout from bomb testing and nuclear accidents would be considered natural background.

"Area background" means the concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site.

and the EPA (USEPA 2002[4]). Soil conditions, including concentrations of metals, minerals, and nutrients, are major determinants of plant communities. (Other determinants include, but are not limited to, soil moisture, soil texture, temperature, and sunlight.) Therefore, it is not possible to conclude "risk" to plant communities if metals, minerals, and nutrients are at natural background levels, even if these concentrations are higher than those determined through laboratory toxicity tests to result in phytotoxicity in test species. Species that are sensitive to certain metals, minerals, or nutrients simply will not be present in areas that have naturally high concentrations of these substances. Plant communities, in turn, are determinants of animal (invertebrate and vertebrate) communities, which also should not be considered at risk when metal concentrations in soil are at naturally occurring levels. Knowledge of natural background concentrations for UCR soils can be applied during the RI/FS process by removing from further consideration those areas where measured soil concentrations of the contaminants of potential concern are no higher than natural background. Areas where concentrations are higher than natural background would be further evaluated to determine which species/communities are likely to be at risk from the elevated concentrations of metals or minerals in soils.

In 2016, EPA prepared and provided TAI with a "level of effort" (LOE) memorandum that outlined an approach to compiling a background dataset from preexisting data sources along with DQO Steps 1to 3 for that process (USEPA 2016). In the memorandum, EPA evaluated 13 studies that may be usable in compiling a background dataset for the Site. EPA's primary criteria were that all samples should have a known location (i.e., known spatial coordinates and depth) that is near the UCR, but is outside the pre-dam 100-year floodplain, the historical sulfur dioxide (SO_2) smelter injury footprint described by Scheffer and Hedgcock (1955), areas disturbed by human activity, and possibly natural forces such as landslides. Data that met these initial screening criteria were evaluated further with respect to sample collection method, chemical analysis methods, and detection limits. This document expands upon EPA's LOE memorandum (USEPA 2016). As stated above, the results of the background assessment will inform future tasks and analyses related to assessing ecological and human health risks.

Data Quality Objectives

Step 1—State the Problem

The determination of natural background concentrations of metals and metalloids in upland soils is needed for use in the RI/FS as stated above. The analysis will determine natural background concentrations of metals and metalloids in soil consistent with the definition of *natural background* contained in the Washington State Model Toxics Control Act (MTCA).[1] This

[4] USEPA (2002) defines background as "constituents or locations that are not influenced by the releases from a site, and is usually described as naturally occurring or anthropogenic (EPA, 1989; EPA, 1995a):

1) *Anthropogenic* – natural and human-made substances present in the environment as a result of human activities (not specifically related to the CERCLA release in question); and,

2) *Naturally occurring* – substances present in the environment in forms that have not been influenced by human activity."

includes anthropogenic influences from large-scale diffuse sources (e.g., mercury, PCBs, dioxin), but eliminates local or point source anthropogenic input. The area for the UCR background assessment is a large, heterogeneous area, which makes it difficult to account generally for local anthropogenic inputs. These include point sources such as aerial transport and deposition from smelter stack emissions from the Teck operations at Trail, BC, and those of the LeRoi/Northport smelter in Northport, WA. Therefore, as detailed in this DQO, soil data from areas in or near roads, railroads, mines, mills, or comparable sites will not be used. Similar to the approach presented by EPA in the LOE memorandum (USEPA 2016), soil data within the area delineated as injured by sulfur dioxide (SO_2) emissions from the 1920s into the1930s will be avoided to remove the potential for including samples that might be affected by aerial deposition from smelter stack emissions in the past. The remaining areas from which soil measurements will be used for background determination are remote from human influence and can be considered representative of natural background. Natural mineralization in the area that contain enrichment of some of the metals and metalloids of interest and related to geogenic processes will be clarified as part of the process of defining natural background concentrations. Further analysis of metal and metalloid concentrations in UCR soils is needed to identify those areas where measured soil metal and metalloid concentrations are at or below natural background and areas where concentrations are higher than natural background, and to inform the UCR remedial investigation and the ecological and human health risk assessments.

Step 2—Identify the Goals of the Study

The study goal is to compile a dataset of soil metal and metalloid concentrations from northeast Washington State that are of sufficient data quality to calculate summary statistics needed for assessing the nature and extent of soil concentrations above natural background levels and for assessing ecological and human health risks in these areas.

Step 3—Identify Information Inputs

The data sources to be considered include the following:

- Data from studies identified in EPA's LOE memorandum
- Studies referenced in other TAI UCR reports, as well as studies prepared for Teck Metals' Trail operations
- UCR-RI/FS database
- Washington State Department of Ecology (Ecology) Environmental Information Management System (EIM) data from northeastern Washington (Ecology 2018)

- National Uranium Resource Evaluation (NURE)–Hydrogeochemical and Stream Sediment Reconnaissance (HSSR) dataset (Smith 2006)[5]
- U.S. Geological Survey (USGS) databases and datasets including the National Geochemical Database (USGS 2016), the National Geochemical Survey (USGS 2008), and the North American Soil Geochemical Landscapes Project (Smith et al. 2013). These include the NURE reanalysis data for Washington State (NURE 2000 dataset[6]), cooperative efforts by the USGS and the Washington State Department of Natural Resources (DNR) encompasses the States 2004, 2005, 2006a datasets, data from the PLUTO database,[7] and low density geochemical and mineralogical soil survey data.
- Canadian datasets available online
  - British Columbia Soil Information System (BCSIS; Province of British Columbia 2014)
  - British Columbia Ministry of Environment (BCME 2016)

See Attachment A for the specific data sources under consideration.

Step 4—Define the Boundaries of the Study

Surface soil samples from a broad area in northeastern Washington on either side (east and west) of the Columbia River will be considered in terms of their data quality and relevance. Data from studies conducted near the Columbia River will be given preference, but soil samples from farther away may be needed to verify that the closer-in data represent natural background and have not been influenced by the Trail or LeRoi/Northport smelters. The surficial soil layer is of greatest relevance to the ecological and human health risk assessments. As such, concentration data for surface soils are preferred; samples collected deeper than 6 in. will be critically reviewed and included in the dataset for the background assessment only if they are needed to fill data gaps.

Step 5—Define the Analytic Approach

This study has three steps:

- Compile the dataset.

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[5] Based on recommendations from EPA made at the October 2, 2017 meeting, data from the hydrogeochemical and stream sediment reconnaissance (HSSR) phase of the NURE program will be considered.

[6] USGS (2008), "A suite of samples from across the entire US, pulled from the NURE archive and analyzed in 2000. Four week-long forays to the warehouse by 5-10 person teams were required to identify and package the samples. In doing these analyses, the NGS [National Geochemical Survey] extended work done at a regional scale in the southeastern US to a national scale effort. Most were analyzed by the ICP40, As, Se, and Hg methods. ~10% were also analyzed by INAA."

[7] USGS (2008), "The PLUTO database contains the results of analyses of geological material done by the Branch of Analytical Laboratories (and its successors and predecessors at the USGS) between the late 1960's and mid 1990's. PLUTO is one component of the National Geochemical Database at the USGS."

- Examine the data geospatially to verify that the samples are representative of natural background (i.e., they are not influenced by local anthropogenic sources) and determine whether combined they represent a homogenous population as a single set of data, or should be segregated into two or more distinct geographic areas based on the data attributes.
- Evaluate the data statistically to characterize background concentrations and identify a natural background threshold value for each of the metals/metalloids of interest.

Data Compilation

The dataset used to determine natural background soil concentrations will be evaluated using a tiered approach similar to that presented in EPA's LOE memorandum. The three tiers will include the following:

- Tier I—Samples should conform to the following:
  - Include geographic coordinates
  - Located in northeast Washington State
  - Be a soil matrix[8]
- Tier II—Add key supplemental data based on sample location to identify or avoid, if possible, geogenic and anthropogenic sources of the metals and metalloids of interest.
  - Pre-dam era 100-year floodplain, if available, or the 100-year floodplain will be used
  - Within or outside the historical SO_2 injury area (recording which "%Injury" zone; Scheffer and Hedgcock 1955)
  - For the NURE-HSSR samples, include the field judgement of possible contaminant sources or major activities near the sample site (CONTAMC field)
  - Distance to the nearest road
  - Distance to the nearest railway
  - Distance to the nearest mine
  - Distance to the nearest ore- or rock-processing mill
  - Distance to the nearest landfill
  - Geology
  - State of Washington Water Resources Inventory Area (WRIA) and Hydrologic Unit Code, plus the following physiographic features and built structures or features:
    - Distance to the nearest drainage feature within the same drainage

[8] For the NURE-HSSR dataset, the background dataset will not only consider soil, but also stream sediments.

        - Distance to the nearest mineralized area located upgradient in the same drainage
        - Distance to the nearest mill located upgradient in the same drainage
        - Distance to the nearest landfill located upgradient in the same drainage
        - Distance to the nearest road located upgradient in the same drainage
        - Distance to the nearest railway area or facility located upgradient in the same drainage
        - Distance to the nearest landslide upgradient in the same drainage
    - U.S. Department of Agriculture soil type
    - Land use
- Tier III—Add key sampling information to assess data compatibility and usability
    - Date of sample collection and sample depth
    - Sample type (e.g., grab/discrete or composite)
    - Size of particles analyzed (e.g., <2 mm, <149 μm)
    - Analytical suite (metals/metalloids only)
    - Digestion method
    - Analytical method

The supplemental data will be used to assess the influence of geogenic and anthropogenic sources as discussed above.

Geospatial Examination

Once all the data and their associated supplemental data have been tabulated and screened, soil concentrations will be used to determine background values for each metal and metalloid as follows. Maps will be generated to show concentrations overlaid with geospatial classifications, including drainage boundaries, geological classifications, and locations of anthropogenic alterations or disturbances. Analysis of variance[9] will be used to identify significant differences between the categories of each geospatial classification shown on the maps. Concentrations will be plotted to evaluate the distribution and analysis of variance used to identify significant differences between categories of each geospatial classification shown on the maps. Quantile-quantile (QQ) or cumulative distribution plots, with formal outlier tests (Dixon and Rosner,

[9] If the underlying assumptions of analysis of variance (ANOVA), specifically normality and homogeneity of variance, can be met using concentrations as measured or through a transformation (e.g., log) this will be preferred over using a non-parametric ANOVA such as Kruskal-Wallis. Comparison of results from both ANOVA methods can highlight overly influential samples or the impact of handling undetected analytical concentrations.

depending on the number of samples) if necessary, will be the basis to identify overly influential sample concentrations.

The geospatial analysis will determine if there are obvious differences between geographic regions (e.g., east versus west side of the Columbia River, specific drainages) or by underlying geology and evidence of anthropogenic alteration or disturbance. If no divisions are apparent, all of the data will be combined into a single dataset for the statistical analysis described below. However, if there is a technical basis to segregate the data, then the statistical analysis will be conducted separately on each group of data.

Background Threshold Values

Both the ecological and human health risk assessments include comparisons to background concentrations of metals and metalloids and rely on a background threshold value for screening. The ProUCL 5.1 (USEPA 2015) software is used by EPA regions, states, contractors, and stakeholders to summarize chemical concentrations in background soils and follows EPA guidance for developing background threshold values for use in risk assessments. A one-sided 95 percent upper confidence limit on the 95th percentile, or 95/95 upper tolerance limit (UTL), will be selected based on the distributional assessments and outlier evaluation from the multiple statistics provided in the ProUCL output. The report will include QQ or cumulative distribution plots along with a table of summary statistics, goodness-of-fit distributional assessments, and UTL concentrations for the entire dataset or geographically-limited subsets, depending upon the analysis described above, with and without identified outliers excluded. The complete output from ProUCL will be provided as an attachment to the report.

The complete steps of this analytical approach follow the approach described by EPA (2006b), for the entire dataset or more homogenous subsets that may be identified based upon the geospatial analysis.

Step 6—Specify the Performance Criteria

Geographical performance criteria in Tier II and III screening consists of the following, which are detailed in Table 1:

- Location undeveloped based on Ecology land use codes (see Table 1)
- Outside the SO_2 injury area
- WRIAs 49, 51, 52, 53, 54, 55, 58, 59, 60, 61, and 62
- Pre-dam era 100-year floodplain or 100-year floodplain—Outside
- Distance to the nearest road—At least 50 m away
- Distance to the nearest railway—At least 50 m away
- Distance to the nearest mine—At least 500 m away
- Distance to the nearest mill—At least 500 m away
- Distance to the nearest landfill—At least 500 m away

- Distance to the nearest landslide—Outside footprint

Sampling and chemical analytical methods described in Tier III will be assessed according to the following criteria:

- Analytical methods should be by inductively coupled plasma or atomic adsorption, and for selected NURE-HSSR results instrumental neutron activation analysis (INAA).
- Detection limits should be below screening values for human health and ecological risk assessments (see Table 2).
- Depth intervals of 0 to 1 in. and 0 to 3 in. are preferred, but sample depths up to 6 in. may be acceptable in areas where significant data gaps are identified.
- Other features (e.g., sample type, particle size, date of sample collection, digestion method) will be assessed for bias in concentrations using graphical and statistical summaries.

In the unlikely event that all data will be screened out by the above criteria, i.e., no acceptable samples are identified, TAI will revisit the criteria to determine which ones are the most restrictive. TAI will then refine the criteria to be less restrictive, recognizing that the resulting background values may be less robust and subject to greater uncertainty. TAI will discuss the refined criteria with EPA before rescreening the data.

Step 7—Develop a Plan for Obtaining the Data

Attachment A lists the studies under consideration for supplying data for the background assessment. Analytical results of the chemical concentrations for the metals and metalloids from these studies are already tabulated, but additional information may need to be added for some, such as sample collection or analytical methods, size of particles analyzed (sieve size), and depths. Some of the supplemental data listed in Tier II will be added following the initial geospatial analyses.

Supplemental data will be retrieved from sources such as:

- USGS (e.g., geology, mines, mills, prospects, watersheds, landfill, roads, railways)
- DNR (e.g., land use, landslides, inactive and abandoned mines) (Wolff et al. 2008)
- Ecology (e.g., water resource inventory areas, site investigations, removal actions)
- Federal Emergency Management Agency (e.g., floodplain maps)
- U.S. Department of Agriculture (e.g., soil surveys)
- Scheffer and Hedgcock (1955; SO_2 smelter injury footprint).

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Attachment A

Information Under Consideration

Information Under Consideration

This attachment lists the documents and databases that will be considered for integration into the background soil dataset. The following general categories of studies are being reviewed:

- EPA's LOE memorandum (USEPA 2016)
- Studies referenced in other TAI reports prepared for the UCR remedial investigation and feasibility study, as well as studies prepared for Teck Metals' Trail operations that may inform the background assessment
- UCR-RIFS database
- EIM data from Northeastern Washington
- USGS Datasets
  - NURE- HSSR dataset
  - National Geochemical Database
  - National Geochemical Survey
  - North American Soil Geochemical Landscapes Project (Smith et al. 2013)
- Washington Division of Geology & Earth Resources.

EPA LOE Memorandum

Church, S.E., F.E. Kirschner, L.M. Choate, P.J. Lamothe, J.R. Budahn, and Z.A. Brown. 2008. Determination of premining geochemical background and delineation of extent of sediment contamination in Blue Creek downstream from Midnite Mine, Stevens County, Washington. Scientific Investigations Report 2007-5268. U.S. Geological Survey, Reston, VA.

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Ecology. 2013. Upper Columbia River upland soil sampling study, Stevens County, Washington. 17800-36. Prepared by Hart Crowser. Washington State Department of Ecology, Seattle, WA.

Ecology. 2013. Van Stone Mine remedial investigation. 17800-11. Prepared by Hart Crowser. Washington State Department of Ecology. Seattle, WA.

Randolph Construction Services. 2011. Soil remediation, boundary land port of entry, Stevens County, Washington. Prepared by Shannon & Wilson, Inc., Richland, WA. Randolph Construction Services, Inc., Pasco, WA. October.

Smith, D.B., W.F. Cannon, L.G. Woodruff, F. Solano, J.E. Kilburn, and D.L. Fey. 2013. Geochemical and mineralogical data for soils of the conterminous United States. Data Series 801. U.S. Geological Survey, Reston, VA.

TAI. 2015. Upper Columbia River final soil study data summary report. Prepared by Windward Environmental LLC, Seattle, WA, in association and consultation with Exponent, Bellevue, WA, Parametrix, Inc., Bellevue, WA, and ENVIRON, Seattle, WA. Teck American Incorporated, Spokane, WA. October.

USEPA. 2002. Preliminary assessments and site investigations report, lower Pend Oreille River mines and mills, Pend Oreille, Washington. U.S. Environmental Protection Agency, Region 10, Superfund Technical Assessment and Response Team (START-2), Seattle, WA.

USEPA. 2002. Preliminary assessments and site investigations report, upper Columbia River mines and mills, Stevens County, Washington. U.S. Environmental Protection Agency, Region 10, Superfund Technical Assessment and Response Team (START-2), Seattle, WA.

USEPA. 2003. Upper Columbia River expanded site inspection report, northeast Washington. U.S. Environmental Protection Agency, Region 10, Superfund Technical Assessment and Response Team (START-2), Seattle, WA.

Wells, K. 2015. Heavy metal contamination in soil and lichen tissue in the Colville National Forest, Washington, USA. Masters. School of Environment, Natural Resources and Geography, Bangor University, Wales, United Kingdom. 110 pp.

Studies Referenced in Other TAI UCR and Teck Metals' Trail Operations Reports

All of these reports are available and the data tabulated.

Ames, K.C., and E.A. Prych. 1995. Background concentrations of metals in soils from selected regions in the State of Washington. Water-Resources Investigations Report 95-4018. U.S. Geological Survey.

On-Line Data Repositories

UCR-RIFS Database

Burt, R., M.A. Wilson, M.D. Mays, and C.W. Lee. 2003. Major and trace elements of selected pedons in the USA. J Environ Qual 32:2109–2121.

Carter, P. 2009. Personal communication (letter to Jim Whitbread of Stevens County Department of Public Works, dated February 3, 2009, regarding no further action at the Brooks Road, Evens, WA site [Site no. 7070765]). Washington State Department of Ecology, Spokane, WA.

Carter, P. 2009. Personal communication (letter to Jim Whitbread of Stevens County Department of Public Works, dated February 3, 2009, regarding no further action at the Peterson Swamp Road, Evens, WA site [Site No. 2704912]). Washington State Department of Ecology, Spokane, WA.

Ecology. 2013. Van Stone Mine remedial investigation. Prepared by Hart Crowser, Seattle, WA. Washington State Department of Ecology. November.

Holmgren, G.G.S., M.W. Meyer, R.L. Chaney, and R.B. Daniels. 1993. Cadmium, lead, zinc, copper, and nickel in agricultural soils of the United States of America. J Environ Qual 22:335–348.

Stevens County. 2008. Voluntary cleanup report, Brooks Road/Bonanza Mine roadbed materials, Stevens County, Washington. Prepared by URS, Spokane, WA. Stevens County Department of Public Works. Spokane, WA. October.

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TAI. 2016. 2016 Residential soil study quality assurance project plan, Addendum No. 1 to the 2014 residential soil study quality assurance project plan. Prepared by Ramboll ENVIRON, Seattle, WA. Teck American Incorporated, Spokane, WA.

TAI. 2016. Bossburg Flat Beach refined sediment and soil study data summary report. Prepared by Windward LLC, Seattle, WA, in association and consultation with Exponent and Parametrix, Inc., Bellevue, WA. Teck American Incorporated, Spokane, WA.

TAI. 2017. Final Residential Soil Study Data Summary Report. Prepared by Ramboll ENVIRON, Seattle, WA, in association and consultation with Exponent, Bellevue, WA, Parametrix, Inc., Bellevue, WA, and Windward LLC, Seattle, WA. Teck American Incorporated, Spokane, WA. October. October.

USDA NRCS. 2009. Soil geochemistry spatial database. https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/home/?cid=nrcs142p2_053632. Accessed on August 24, 2017. U.S. Department of Agriculture, Natural Resources Conservation Service.

USEPA. 2002. Preliminary assessments and site investigations report, lower Pend Oreille River mines and mills, Pend Oreille, Washington. U.S. Environmental Protection Agency, Region 10, Superfund Technical Assessment and Response Team (START-2), Seattle, WA.

USEPA. 2002. Preliminary assessments and site investigations report, upper Columbia River mines and mills, Stevens County, Washington. U.S. Environmental Protection Agency, Region 10, Superfund Technical Assessment and Response Team (START-2), Seattle, WA.

USEPA. 2005. LeRoi Smelter Removal Action site management plan. TDD: 04-10-0008. Prepared by Weston Solutions Inc., Seattle, WA. U.S. Environmental Protection Agency, Region 10 Superfund Technical Assessment and Response Team, Seattle, WA.

USEPA. 2016. UCR residential soil study field sampling and data summary report. Prepared by CH2M HILL, Portland, OR. U.S. Environmental Protection Agency, Region 10. February.

Wilson, M.A., R. Burt, S.J. Indorante, A.B. Jenkins, J.V. Chiaretti, M.G. Ulmer, and J.M. Scheyer. 2008. Geochemistry in the modern soil survey program. Environmental Monitoring and Assessment 139(1):151–171.

EIM Data from Northeastern Washington

EIM data will be filtered by evaluating an aerial photograph in which all the samples for the EIM Study ID are plotted. The study will be categorized "developed" or "further evaluation" since many studies may center around developed areas and can be filtered out.

USGS Data

Smith, D.B., W.F. Cannon, L.G. Woodruff, F. Solano, J.E. Kilburn, and D.L. Fey. 2013. Geochemical and mineralogical data for soils of the conterminous United States: U.S. Geological Survey Data Series 801. U.S. Geological Survey. 19 pp.

Smith, S.M. 2006. National Geochemical Database—Reformatted Data from the National Uranium Resource Evaluation (NURE) Hydrogeochemical and Stream Sediment Reconnaissance (HSSR) Program: Version 1.40: U.S. Geological Survey Open-file Report 97-492. Available at http://pubs.er.usgs.gov/usgspubs/ofr/ofr97492. U.S. Geological Survey.

USGS. 2008. The National Geochemical Survey—Database and Documentation: Version 5.0. U.S. Geological Survey Open-file Report 2004-1001. Available at https://mrdata.usgs.gov/geochem/doc/home.htm. U.S. Geological Survey.

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Table 1. Exclusion and performance criteria details

Criteria	Type	Tier	Basis	Limits	Method/Resources
Location					
Geographic coordinates	Exclusion	I	Geographical coordinate information needed to identify proximity to potential contamination.	Present	Reported by individual studies and data repositories
Regional geographic location within northeastern Washington State	Exclusion	I	Bounds sample selection to the relevant area.	WRIAs 49, 51, 52, 53, 54, 55, 58, 59, 60, 61, and 62	Assign with ArcGIS—exclude outside of specified WRIAs (Ecology 2017)
Pre-dam era 100-year floodplain, if available or 100-year floodplain	Exclusion	II	Avoid areas that may include slag and effluent waste.	Floodplain perimeter	If the map can be located.
Historic SO_2 smelter injury zones	Exclusion	II	Avoid areas contaminated by historic smelter emissions.	Injury zone perimeter	Assign with ArcGIS—exclude inside of injury areas (Scheffer and Hedgcock 1955)
Land use	Exclusion	II	Avoid areas contaminated by residential, commercial, industrial, and natural resource extraction activities.	Land use codes 87, 88, 89, 91, 92, 93, 94, 95, 99[a]	Assign with ArcGIS—exclude outside of specified land use codes (Ecology 2010)
Soil type	Assessment	II	Soil type may affect sample composition.	None	Assign with ArcGIS (USDA 2016)
Geology	Assessment	II	Local geology may affect sample composition.	None	Assign with ArcGIS (USDA 2016)
NURE dataset contamination field	Exclusion	NA	Avoid areas contaminated by residential, commercial, industrial, and natural resource extraction activities.	Entry of “none” or “grazing”	Field from NURE-HSSR database—exclude entries beside “none” or “grazing” (USGS 2004)
Distance and gradient[b] to nearest					
Road	Exclusion	II	Avoid areas contaminated by historical use of leaded gasoline, imported roadbed materials, and fugitive dust from hauling loads without tarps or other containment.	50 m	Measure with ArcGIS—exclude within 50 m of road (USGS 2017)
Railway	Exclusion	II	Avoid areas contaminated by imported roadbed materials and fugitive dust from hauling loads without tarps or other containment.	50 m	Measure with ArcGIS—exclude within 50 m of railway (USGS 2017)
Landfill	Exclusion	II	Avoid areas contaminated by placement of waste materials on land surfaces.	500 m	Measure with ArcGIS—exclude within 500 m of landfill (USGS 2008)
Mine	Exclusion	II	Avoid areas contaminated by mining activities.	500 m	Measure with ArcGIS—exclude within 500 m of mine[c] (USGS 2005)
Mill	Exclusion	II	Avoid areas contaminated by milling activities.	500 m	Measure with ArcGIS—exclude within 500 m of mill[c] (USGS 2005)
Landslide	Exclusion	II	May have exposed materials not representative of surface or near-surface conditions.	Footprint perimeters	Measure with ArcGIS—exclude inside of landslide footprints (WADNR 2017)
Sample and analysis characteristics					
Matrix	Exclusion	I	Avoid mischaracterizing soil background by excluding non-soil matrices.	Soil[d]	Exclude non-soil matrices
Depth interval	Exclusion	III	The top 6 inches of soil is the active root zone, where plants take up nutrients (and contaminants) and where most soil microbes and invertebrates are found.	6 in	Exclude samples collected below 6 in
Sample type	Assessment	III	Sampling techniques may yield differential representativeness of the sample results (e.g., grab/discrete or composite).	None	Reported by individual studies and data repositories
Particle size	Exclusion	III	Particles larger than 2 mm are considered rock, not soil.	2 mm	Exclude sieve size >2 mm
	Assessment	III	Different particle sizes may result in different ranges for analytical results.	None	Reported by individual studies and data repositories

Table 1. Exclusion and performance criteria details

Criteria	Type	Tier	Basis	Limits	Method/Resources
Sample collection date	Assessment	III	Implications for analytical methods, detection limits, and potential nearby anthropogenic activities corresponding with the date.	None	Reported by individual studies and data repositories
Digestion method	Assessment	III	Digestion methods may liberate metals (e.g., loosely bound or total recovery)	None	Reported by individual studies and data repositories
Analytical method	Exclusion	III	Analytical methods may have different detection limits, analytical error, etc.	ICP or AA	Exclude analytical methods beside ICP or AA with the exception of INAA for some NURE-HSSR samples
Detection limits	Assessment	III	Non-detect results with high detection limits may artificially elevate background levels.	None	Reported by individual studies and data repositories

Note: ArcGIS version to be used in spatial analyses is 10.5.

AA - atomic adsorption
ICP - inductively coupled plasma
in - inch
INAA - instrumental neutron activation analysis
m - meter
mm - millimeter
NA - not applicable
NURE-HSSR - National Uranium Resource Evaluation–Hydrogeochemical and Stream Sediment Reconnaissance
UCR - Upper Columbia River
WRIA - water resource inventory area

[a] Land use code definitions:

87 Public timberland/non-designated forest
88 Designated forest land under chapter 84.33 RCW
89 Other resource production
91 Undeveloped land
92 Noncommercial forest
94 Open space land classified under chapter 84.34 RCW
95 Timberland classified under chapter 84.34 RCW
99 Other undeveloped land

[b] Distinction between features up- and down-gradient of sample locations will support assessment of potential surface runoff and fugitive dust impacts that may affect sample concentrations. The “Flow Length” function in the Hydrology module of the spatial Analyst extension in ArcGIS was used to calculate the distance to upstream features. First, a flow direction raster was created from a digital elevation model using the “Flow Direction” tool. The flow direction raster shows the direction of flow out of each cell. Second, an upstream flow length raster was created using “Flow Length” tool, which calculates the upslope distance along the flow path, from each cell to the upstream features. Lastly, the flow length to upstream features for each location was extracted from the upstream flow length raster based on its spatial location.

[c] Mines and mills considered for this criteria are producers, past producers, plants, or locations designated with an “unknown” development status. Locations with a development status of occurrence (outcrop, shallow pits, or isolated drill holes) or prospect (trenching adits, shafts, characterization) were not considered for this exclusion criteria (e.g., a sample collected < 500 m from an occurrence or prospect is not excluded). For full development status definitions, see USGS (2005).

[d] For the NURE-HSSR dataset, sediments will also be included.

References

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Ecology. 2017. Water Resource Inventory Areas (WRIA). Vector digital data. Available at https://fortress.wa.gov/ecy/gispublic/DataDownload/ECY_WAT_WRIA.zip. Accessed on December 6, 2017. Washington State Department of Ecology.

Scheffer, T.C., and G.G. Hedgcock. 1955. Injury to northwestern forest trees by sulfur dioxide from smelters. Technical Bulletin 1117. U.S. Department of Agriculture, Economic Research Service, Washington, DC.

USDA. 2016. Web soil survey. Available at https://websoilsurvey.nrcs.usda.gov/. Accessed October 16, 2017. U.S. Department of Agriculture.

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USGS. 2005. Mineral Resources Data System. Available at https://mrdata.usgs.gov/mrds/. Accessed on January 9, 2017. U.S. Geological Survey.

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WADNR. 2017. Landslides and landforms--GIS data, August, 2017: Washington Division of Geology and Earth Resources Digital Data Series 12, version 5.0, previously released February, 2016. Available at http://www.dnr.wa.gov/publications/ger_portal_landslides_landforms.zip. Accessed on December 15, 2017. Washington State Department of Natural Resources, Division of Geology and Earth Resources.

Table 2. Detection limits needed based on conservative risk-based screening values in mg/kg dry weight in soil

	Ecological Soil Screening Level (ecoSSL)								
TAL Metals	Available	USEPA Document	Terrestrial Plants	Soil Invertebrates	Avian Wildlife	Mammalian Wildlife	Minimum ecoSSL	Human[a]	Maximum Detection Limit (or lower)
Aluminum	Yes[b]	2003[a]	–	–	–	–	–	77,400	77,400
Antimony	Yes	2005[a]	[c]	78	[c]	0.27	0.27	31.3	0.27
Arsenic	Yes	2005[b]	18	[c]	43	46	18	20	18
Barium	Yes	2005[c]	[c]	330	[c]	2000	330	15,300	330
Beryllium	Yes	2005[d]	[c]	40	[c]	21	21	156	21
Cadmium	Yes	2005[e]	32	140	0.77	0.36	0.36	71.1	0.36
Calcium	No		–	–	–	–	–	–	10,000[g]
Chromium	Cr(III) Yes	2008	[c]	[c]	26	34	26	–	26
	Cr(V) Yes	2008	[c]	[c]	[c]	130	130		
Cobalt	Yes	2005[f]	13	[c]	120	230	13	23.4	13
Copper	Yes	2007[a]	70	80	28	49	28	3,130	28
Iron	Yes[d]	2003[b]	–	–	–	–	–	54,800	54,800
Lead	Yes	2005[g]	120	1700	11	56	11	400[e]	11
Magnesium	No		–	–	–	–	–	–	10,000[g]
Manganese	Yes	2007[b]	220	450	4300	4000	220	1,830	220
Mercury	No		–	–	–	–	–	10.9	0.2[h]
Nickel	Yes	2007[c]	38	280	210	130	38	1,550	38
Potassium	No		–	–	–	–	–	–	10,000[g]
Selenium	Yes	2007[d]	0.52	4.1	1.2	0.63	0.52	391	0.52
Silver	Yes	2006[c]	560	[c]	4.2	14	4.2	391	4.2
Sodium	No		–	–	–	–	–	–	10,000[g]
Thallium	No		–	–	–	–	–	0.782	0.25[i]
Vanadium	Yes[f] (interim final)	2005[h]	[c]	[c]	7.8	280	7.8	393	7.8
Zinc	Yes	2007[e]	160	120	46	79	46	23,500	46

Notes on following page.

Table 2. Detection limits needed based on conservative risk-based screening values in mg/kg dry weight in soil (continued)

	Ecological Soil Screening Level (ecoSSL)								
TAL Metals	Available	USEPA Document	Terrestrial Plants	Soil Invertebrates	Avian Wildlife	Mammalian Wildlife	Minimum ecoSSL	Human[a]	Maximum Detection Limit (or lower)

Notes:

[a] Except for arsenic, chromium, and four essential nutrients (calcium, magnesium, potassium, and sodium) screening levels are conservative risk-based concentrations calculated using EPA's Regional Screening Level Calculator (http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search) and default values for residential exposure factors. The screening level for arsenic is based on the Washington cleanup level (20 mg/kg) and was established as the project action limit for arsenic in the 2014 residential soils study. There is no human health screening level for total chromium.

[b] No numeric ecoSSLs. Aluminum identified as of potential concern only for soils with a soil pH < 5.5.

[c] Insufficient data to derive soil screening values.

[d] No numeric ecoSSLs. Iron identified as of concern as a mediator in the geochemistry of other metals and the potential physical hazard of depositing iron floc.

[e] The EPA screening value for lead (400 mg/kg) incorporates a default relative bioavailability (RBA) assumption and is not directly comparable to measured lead as reported by the analytical laboratory without adjustment for RBA. The State of Washington has adopted a screening level for lead of 250 mg/kg, which is the value that was reported to landowners in letters summarizing their residence-specific study results.

[f] Vanadium ecoSSL report is interim final.

[g] Calcium, magnesium, potassium, and sodium are toxic to wildlife in the percent range, and therefore the detection limit from any type of soil analysis that is less than 10,000 mg/kg is acceptable (NRC 2005).

[h] Soil mercury is in the inorganic form. According to NRC (2005), diets with "0.2 mg/kg is tolerated by rodents, poultry, and pigs".

[i] The maximum detection limit allowable for thallium is based on the U.S. Army's Wildlife Toxicity Assessment for Thallium (USACHPPM 2007) which has a rat-based toxicity reference values (TRV) derived from exposure of 10 ppm thallium in drinking water with additional uncertainty factors. The lowest-observed-adverse-effect level [LOAEL] uncertainty factor of 4 and NOAEL uncertainty factor of LOAEL/10). This results in 2.5 ppm for LOAEL and 0.25 ppm for NOAEL, thus 0.25 mg/kg would be conservative choice for the maximum allowed detection limit. No information was found for birds, invertebrates, or plants.

mg/kg – milligram(s) per kilogram(s)

Attachment A-2

TAI Responses to EPA's Consolidated Comments (TAI 2018a)

Comment Number	Comment	Type	TAI Response
General Comments			
1	The draft document notes that results from the background soil assessment will inform future tasks related to assessing ecological and human health risks. Describe more concretely the specific RI/FS-related uses for this background soil data.	Additional detail	**Specific RI/FS Use for Background Soil Data** **Ecological Risk Assessment:** Soil conditions, including concentrations of metal, minerals, and nutrients, are major determinants of plant communities (other determinants include, but are not limited to, soil moisture, soil texture, temperature, and sunlight). Therefore, it is not possible to conclude "risk" to plant communities if metals, minerals, and nutrients are at natural background levels, even if these concentrations are higher than those determined through laboratory toxicity tests to result in phytotoxicity in test species. Species that are sensitive to certain metals, minerals, or nutrients simply will not be present in areas that have naturally high concentrations of these substances. Plant communities, in turn, are determinants of animal (invertebrate and vertebrate) communities, which also should not be considered at risk when soils concentrations are at naturally occurring levels. Knowledge of natural background concentrations in upland soils at the Upper Columbia River (UCR) Site (the Site) can be applied during the RI/FS process by removing from further consideration areas where measured soil concentrations of the contaminants of potential concern are no higher than natural background. Areas where concentrations are higher than natural background will be further evaluated to determine which species/communities are likely to be at risk from the elevated concentrations of metals or minerals. **Human Health Risk Assessment:** Understanding natural and area background concentrations is essential to distinguishing the potential for risk associated with the Site from risks unrelated to the Site. Consistent with U.S. Environmental Protection Agency (EPA) guidance, risks associated with natural and area background concentrations should be discussed in the risk characterization of the baseline human health risk assessment (BHHRA) by describing the contribution of background risks to cumulative risks (USEPA 2002). Human health risks based on the natural background concentrations developed in the background assessment will be compared to risks estimated for decision units (DUs) evaluated in the residential soil study. In areas where background risks are greater than those associated with the Site, the background concentrations will be used to refine numeric cleanup levels for those specific chemicals of concern (COCs), as cleanup levels cannot be set at concentrations below area or natural background concentrations. USEPA. 2002. Appendix B, Policy considerations for the application of background data in risk assessment and remedy selection, Role of background in the CERCLA cleanup program. OSWER 9285.6-07P. In: Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. EPA 540-R-01-003, OSWER 9285.7-41. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency and Remedial Response, Washington, DC. September.

Comment Number	Comment	Type	TAI Response
2	The BERA workplan is not specific about which "background" will be used for comparison if unacceptable risks are determined. The DQO document needs to identify what kind of background is being defined ("area" versus "natural") and whether different types of background are needed for the different RI/FS and risk assessment tasks, or if an effort will be made to determine site-specific background with comparable natural and anthropogenic variability. Given that there are other sources of metals in the area, it makes sense to determine area background as well as geological (natural) background from non-site related anthropogenic (area) background.	Additional detail	The analysis will determine natural background as per the definition in the Washington State Model Toxics Control Act. This includes anthropogenic influence of large-scale diffuse sources (e.g., mercury; PCBs, dioxin), but eliminates local or point source anthropogenic input. The area to be evaluated in the background assessment is a large, heterogeneous area, which makes it difficult to account generally for local anthropogenic inputs. Therefore, as detailed in the data quality objectives (DQOs), soil data from areas such as in or near, roads, railroads, mines, mills will not be used. Similar to the approach presented by the EPA in the "level of effort" memorandum (USEPA 2016) that outlined an approach to compiling a background dataset from preexisting data sources along with DQO Steps 1to 3 for that process, soil data within the area delineated as injured by sulfur dioxide (SO_2) in the 1920s–1930s (Scheffer and Hedgcock 1955) will be avoided to remove the potential for deposition from Trail and LeRoi/Northport smelters. The area serves as a convenient exclusion zone for selecting background samples within the Site, away from areas affected by historical emissions from both the Trail and LeRoi/Northport smelter stacks without the use of air dispersion and deposition modeling. The remaining areas from which soil measurements will be used for background determination are remote from human influence and can be considered natural background. The DQOs are focused on defining natural background concentrations only, largely supporting the baseline ecological risk assessment (BERA), and do not address local area, or anthropogenic, background concentrations. While determination of natural background will be useful to both the BERA and BHHRA, the BHHRA also must consider anthropogenic *influences* on a localized scale affecting residential properties, which is an issue that will be addressed apart from defining the natural background levels. For example, the residential soil sampling and removal efforts documented discarded lead acid batteries, presence of treated wood, domestic waste incineration, past pesticide use, and other human sources of contamination to Site upland soils that are unrelated to historical aerial deposition of metals from smelter emissions or the presence of mineralized soils. The influence of human sources and activities contributes to "area" background concentrations, particularly for lead and arsenic, and must be considered on a case-by-case basis for those properties where measured metals concentrations in soil are greater than natural background. Scheffer, T.C., and G.G. Hedgcock. 1955. Injury to northwestern forest trees by sulfur dioxide from smelters. Technical Bulletin 1117. U.S. Department of Agriculture, Economic Research Service, Washington, DC. USEPA. 2016. EPA level of effort (LOE) for assessment and estimations of upland soils - Upper Columbia River Basin. U.S. Environmental Protection Agency, Technical Team. July.

Comment Number	Comment	Type	TAI Response
3	Provide basis for developing background concentrations for all 23 metals and metalloids. Some metals are essential nutrients and not risk drivers (e.g., calcium, magnesium, sodium, potassium, etc.). If Teck proposes using these additional metals for purposes of estimating soil cation exchange capacity or otherwise, such intended uses should be defined in the DQOs.	Study design	Knowledge about natural background soil concentrations is needed to assess risks to any inorganic substances of concern in the UCR uplands, as described in response to General Comment 1. We began with the 23 target analyte list (TAL) metals, which were agreed upon by Teck American Incorporated (TAI) and EPA as those that would be quantified in the Upland Soil Sampling QAPP (TAI 2014) for risk determination. The TAL was derived from EPA's Priority Pollutants list of 126 metal and organic substances, which are a subset of the "toxic pollutants" as defined in the Clean Water Act. The Priority Pollutants were those frequently found in wastewater, and the 23 TAL metals are those also frequently encountered at hazardous waste sites. The list was developed for aquatic systems, hence the inclusion of aluminum and iron, which are among the most abundant elements in the earth's crust). Aluminum and iron are highly unlikely to cause toxicity in terrestrial systems. The TAL contains some plant-associated nutrients (although nitrogen and phosphorus are notably missing) presumably, because they, too, are frequently elevated in wastewater and at contaminated aquatic sites. If EPA concurs that it is not necessary to assess ecotoxicological risks associated with plant nutrients in the upland soils, then those elements should be removed from the list of terrestrial chemicals of interest for the UCR RI/FS. There is value, however, in retaining potassium, magnesium, calcium, and sodium for further analysis in the BERA. Cation exchange capacity (CEC) is calculated from concentration data for these elements and hydrogen (pH) in soils. Thus, the CEC also can be used (along with pH) to understand the natural bioavailability of metals in soils from the area of interest. TAI. 2014. Upper Columbia River, final soil study quality assurance project plan. Prepared by Exponent, Bellevue, WA, and HDR, Mahwah, NJ, in association and consultation with Parametrix, Inc., Bellevue, WA, and Cardwell Consulting LLC, Corvallis, OR. Teck American Incorporated, Spokane, WA. August.

Comment Number	Comment	Type	TAI Response
4	The term "mineralized area" is used with little specificity. Define “mineralized area”.	Additional detail	For this study, “mineralized areas” are metal/loid deposits identified by the U.S. Geological Survey (USGS) Mineral Resources Data System (MRDS)[1] occurrences, prospects, active/inactive mines, and processing facilities.[2] The 500-m setback for sample selection will be applied to mines and processing facilities. When calculating the distance to the nearest occurrences, prospects, active/inactive mines, and processing facilities, we also added the name of the site and the commodity code[3] used (e.g., AU, PB, CU). We will review these for sites within 500-m to see we are over screening (i.e., excluding samples in areas with non-metallic commodities like pumice or gravel). [1] “MRDS is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references.” https://mrdata.usgs.gov/mrds/ [2] For definitions see https://mrdata.usgs.gov/metadata/mrds.html [3] For definitions see https://mrdata.usgs.gov/mrds/commodity-codes.html
5	Elaborate on the criteria considered to deem a data set acceptable for establishing natural and/or area background (e.g., location relative to known sources, sample depth, target analytes, analytical methods)	Additional detail	The draft final DQO includes a new table, Table 1, which summarizes the criteria that will be used in the assessment.

Comment Number	Comment	Type	TAI Response
6	Limiting samples to those 6 inches and shallower may be unnecessarily restrictive. Although it is true that surface soils are of greatest interest, these are also most likely to be impacted by other sources that may alter concentrations. It might be beneficial to consider shallow subsurface data (6-18 inches) as additional verification data for the surface. If there is no difference between surface and subsurface (i.e., surface is not higher than subsurface), this will support a conclusion that surface samples represent background. However, if surface is greater, this might suggest contamination from some other source.	Study design	**Limiting Samples to the Upper 6 Inches of Soil:** Plants receive most of their nutrients from the soil A Horizon, which is where most soil invertebrates live as well (although some live only in the litter layer on top of the soil). Therefore, risk to terrestrial systems from metal contamination is primarily restricted to concentrations in the A Horizon, i.e., the top 6 inches of soil. While it is tempting to assume that the A Horizon should have similar metal concentrations to the subsoil horizon (e.g., the B Horizon at the 6 to 18 inches depth) in natural areas, there are many reasons why this might not be the case. These include decomposition of plant material, which changes pH, organic/clay ratios, and mobilization of metals and surface movement of topsoil from erosion and/or flooding. The B Horizon is of little to no interest from an ecological perspective, so measurements of the metals concentrations in subsoils would only add uncertainty (if different from surface soils) and not resolve the issue of natural background concentrations. WAC 173-340-200 defines "natural background" as "the concentration of hazardous substance consistently present in the environment that has not been influenced by localized human activities." Methods for defining natural background concentrations are provided in WAC 173-340-709. Comparing soil horizons is not among the methods. WAC 173-340-709 stipulates that comparative samples should have the same basic characteristics as the (soil) of concern at the site, which precludes comparing soil horizons because they have different basic characteristics for the reasons noted above. **Avoiding Contamination from Anthropogenic Sources:** The background dataset will be carefully evaluated to confirm the samples represent a single consistent population without outliers, as explained in DQO Step 5 where it discusses how background threshold values will be derived for the background assessment.

Comment Number	Comment	Type	TAI Response
7	The analytic approach only mentions calculating the "95th UTL". The LOE specified that "For COI/COPCs and elements of interest, the minimum, maximum, mean, median geometric mean, and an upper percentile of the distribution will be estimated at a minimum, along with upper confidence limits where appropriate." Include these additional summary statistics in the Step 5 analytical approach. Additionally, geospatial analysis alone is not adequate to determine if sample results are representative of background. Include use of statistical tests to identify and exclude outliers.	Analytical approach	Complete output from the ProUCL software will be included in the background assessment report, providing all of the summary statistics listed in addition to goodness-of-fit distributional assessments and various statistics for consideration as background threshold value using multiple methods for handling undetected results. The report will include maps showing concentrations overlaid with geospatial classifications, including drainage boundaries, geological classifications, and locations of anthropogenic alternations or disturbances. Analysis of variance will be used to identify significant differences between the various geospatial categories.
8	The use of footnotes to list references as well as additional information is inconsistent with previous UCR documents. The reader would benefit from the addition of a references section and deletion of reference listings in the footnotes.	Editorial	References have been moved into a reference section in the DQO document and the referenced footnotes deleted.

Comment Number	Comment	Type	TAI Response
Specific Comments			
1	DQO Step 3, Pages 4 & 5. The list proposes the use of Ecology's EIM. Any data potentially being identified from this database will require extensive review of the nature and appropriateness of the data collected. A clear demonstration and application that the data found are appropriate for background purposes will be required. The vast majority of EIM data were collected from contaminated cleanup sites, not areas appropriate for developing natural background.	Study Design	The sample data selected for the background assessment will be screened using the criteria for avoiding contamination from anthropogenic sources, other than large-scale diffuse sources, detailed in DQO Table 1 (new) prepared for General Comment 5. TAI expects that by applying these criteria, samples from contaminated sites will be removed from consideration. In addition, project documents for samples from EIM that are not screened out will be reviewed for appropriateness as with any other study included in the background dataset.
2	DQO Step 3, Pages 4 & 5. Geographic study boundaries are a significant consideration. The proposed list includes online Canadian data sets. Unless the data being sought are from soil samples collected in NE Washington State, these Canadian data bases should be removed as potential data sources. This comment was rescinded in an email from EPA (2018), which stated, "Upon further consideration, we view background data from Canada in the vicinity of the Trail Smelter to be representative of local conditions. Data from Canada should therefore be included as potential data sources."	Study Design	TAI has reviewed the two Canadian datasets referred to in the preliminary draft DQO document dated June 1, 2018, i.e., the British Columbia Soil Information System (BCSIS) and British Columbia Ministry of the Environment (BCME) background soil data. For areas north of the Washington State Water Resource Inventory Areas (WRIAs) referred to in General Comment 3, none of the samples from BCSIS were collected from the A Horizon. The BCME background dataset includes surficial samples near 19 cities and towns in the Southern Interior and Kootenay ministry regions of British Columbia. Although some of these (e.g., Trail, Creston, Castlegar, Nelson) may be useful for the delineation study, others are in different physiographic regions and geologic settings, and far afield to be considered representative of background conditions of UCR upland areas. Thus, TAI has removed these datasets from further consideration for the background assessment.

Comment Number	Comment	Type	TAI Response
3	DQO Step 5, Page 5, Geographic scope and boundaries need to be set and acknowledged to manage the extent of data gathering and management. Consider limiting search to samples in the following 11 Water Resource Inventory Areas (WRIAs) connected to the UCR: WRIAs 49, 51, 52, 53, 54, 55, 58, 59, 60, 61, and 62.	Study Design	The revised draft final DQO indicates that the data used in the background assessment will be limited to the WRIAs listed in this comment.
4	DQO Step 4, Page 5. How will TAI determine if soils have been influenced by the LeRoi/Northport smelters? If the intent is to determine which data represent background (presuming natural) and have not been influenced by the Le Roi/Northport smelters (area) it is necessary to establish the area background. Will there be a range in area background as compared to natural background? Some explanation on the intent and process here would be helpful.	Clarification	Area background in the vicinity of Northport would vary by distance and direction away from the site of the former LeRoi/Northport smelter. Selecting samples outside the aerial influence of the LeRoi/Northport smelter is important for assembling a dataset from which natural background concentrations may be calculated. Emissions from the LeRoi/Northport smelter likely followed the same topographic pathway along the river as the area mapped for forest injury shown in Scheffer and Hedgcock (1955). Thus, TAI expects that by excluding samples from the SO_2 injury areas (Zones 1 to 3), most, if not all, the contamination from the LeRoi/Northport smelter should be excluded. Scheffer, T.C., and G.G. Hedgcock. 1955. Injury to northwestern forest trees by sulfur dioxide from smelters. Technical Bulletin 1117. U.S. Department of Agriculture, Economic Research Service, Washington, DC.
5	DQO Step 5, Page 6, Footnote 16. Regarding NURE sediment samples collected from tributary locations, samples collected from UCR tributary streams, whether wet or dry are useful to establishing background and should not be excluded because of conditions at the time of sampling.	Study Design	National Uranium Resource Evaluation (NURE) sediment and soil samples that pass the screening criteria summarized on DQO Table 1 (new; see General Comment 5) will be considered for the background dataset.

Comment Number	Comment	Type	TAI Response
6	DQO Step 5, Page 6 (first bullet, sub-bullet 4 and footnote 17). Describe how Tier 1 screening for undeveloped areas would be performed and how that screening differs from the specific screening criteria listed under Tier II.	Clarification	Removed sub-bullet from Tier I. See Table 1 for details on identification of undeveloped areas.
7	DQO step 5, Page 7. Include date of collection and analytical suite in Tier III in key sampling information.	Additional detail	Date of collection and analytical suite (for metals and metalloids only) have been added to Tier III.
8	DQO Step 5, Page 7. Describe what specific geospatial platform, methodology and criteria will be applied to the data, and what decision criteria will determine data pooling or segregation. Additionally, describe statistical tests to be used to identify and exclude outliers.	Analytical approach	The geospatial platform used is ArcGIS 10.5 with the Spatial Analyst extension. The "Flow Length" function in the Hydrology module of the Spatial Analyst extension in ArcGIS 10.5 was used to calculate the distance to upstream features. Additional details are in DQO Table 1 (new) (see General Comment 5). Analysis of variance will be used to identify significant differences between the various geospatial designations. Outlier tests will include Dixon and Rosner tests, depending on the number of samples, in addition to quantile-quantile plots based on as-measured and log-transformed concentrations.
9	DQO Step 6, Page 9. The draft DQOs propose that only ICP or AA data will be carried forward. This is not an appropriate restriction, as some metals evaluated under other analytic methods also apply. For example, Neutron Activation methods used in Savannah NURE labs are representative and defensible for selected metals of interest--specifically Al, Fe, and Mn.	Study design	For the USGS NURE-HSSR dataset, element concentrations measured by neutron activation by Savannah River National Laboratory will also be considered.
10	DQO Step 6, Page 9, 2nd bullet. Appropriate detection limits based on conservative risk-based screening values should be listed in a table. Also, suggest that these be described as screening values and not risk values.	Additional detail	The suggested revision has been made in the text of the revised DQOs and a new table was added. Table lists the ecological soil screening levels, human health soil risk-based concentrations, and appropriate detection limits.

Comment Number	Comment	Type	TAI Response
11	DQO Step 7, Page 10. The page following page 9 is labeled page 2 but should be page 10.	Editorial	Edit made.
12	Attachment A. There are some sections in the attachment with poorly explained sources (e.g., documents listed under the "Report Not Seen" and "Report Seen" headings). It is not apparent how data from these sources are to be used and evaluated.	Clarification	List has been revised for clarity. Also, studies that are sediment only have been removed from this list.

Attachment A-3

EPA Approval of the Draft Final Background Assessment DQOs (USEPA 2018)

McCaig Kris SPOK

From: Cerise, Kathy <Cerise.Kathryn@epa.gov>
Sent: Tuesday, October 23, 2018 10:44 AM
To: McCaig Kris SPOK
Cc: Gauthier, Marilyn/PDX
Subject: FW: UCR-Background Assessment DQO's - final comments

Kris,

We have no further comment of the Draft Final Background Assessment DQOs.

Thank you

Kathryn Cerise
UCR RPM

Attachment B

Assessment of Methods of Sample Preparation and Analysis

Attachment B
Assessment of Methods of Sample Preparation and Analysis

The methods of sample preparation and analysis were researched for each of the studies in the Tier IIIA dataset. These generally fit into four categories: total metals, partial digestion (also known as total-recoverable), loss on ignition (LOI) plus digestion, and mercury (see discussion in Section 2.3.6.1). Boxplots were made for each metal and metalloid by sample preparation method. In addition, each study is offset within each method group and the size fractions are represented by different symbols. The boxplots are included below. For many of the metals and metalloids, concentrations vary by sample preparation method and by study.

Statistical comparisons between the sample preparation methods (irradiated neutron activation analysis, total digestion, LOI+digestion, and partial digestion) also identified differences in concentrations, although there are other differences between the studies that confound interpretation of differences as only due to sample preparation. Table B-1 summarizes output from non-parametric Kruskal-Wallis and parametric analysis of variance (ANOVA) comparisons between preparation categories. The parametric ANOVA used log-transformed concentrations to better meet the underlying assumptions and Tukey's honest significant difference (HSD) to identify which categories differed at an overall 0.01 significance level after accounting for multiple comparisons.[1]

The boxplots and statistical comparisons indicate significant differences in concentrations between the preparation methods. Additionally, the studies shown on the boxplots and included in the statistical comparisons also reflect differences in sieving and physical location (multiple Washington State Water Resource Inventory Areas [WRIAs]). Although these differences exist, all sample preparation methods remained in the dataset to expand the geographical range and size of the dataset.

Reference

TAI (Teck American Incorporated). 2015. Upper Columbia River final soil study data summary report. Prepared by Windward Environmental LLC, Seattle, WA, in association and consultation with Exponent, Bellevue, WA, Parametrix, Inc., Bellevue, WA, and ENVIRON, Seattle, WA. Teck American Incorporated, Spokane, Washington. October.

[1] Theoretically, using 0.01 as the significance level could identify fewer significant differences than the standard 0.05 level, but for these comparisons most elements (all except antimony and cobalt) were significant at the 0.01 level.

Table B-1. Summary of significant differences between methods of sample preparation

	Method of Sample Preparation		Tukey HSD Similar Methods				Median Concentration Rankings[a]			
Metal	Kruskal-Wallis	ANOVA	INAA	Total Digestion	LOI+ Digestion	Partial Digestion	INAA	Total Digestion	LOI+ Digestion	Partial Digestion
Aluminum	<1.0E-15	<1.0E-15	b	b	a	a	2nd High	Highest	2nd Low	Lowest
Antimony	0.10	0.14	no significant differences					Highest		Lowest
Arsenic	<1.0E-15	<1.0E-15		a		b		Lowest		Highest
Barium	3.5E-03	0.00360		b		a		Highest		Lowest
Beryllium	<1.0E-15	<1.0E-15		b		a		Highest		Lowest
Cadmium	1.9E-12	1.1E-12		b	a	a		Highest	Middle	Lowest
Chromium	<1.0E-15	<1.0E-15		b	a	a		Highest	Lowest	Middle
Cobalt	0.53	0.53	no significant differences					Highest		Lowest
Copper	0.000052	0.00025		ab	a	b		Middle	Lowest	Highest
Iron	<1.0E-15	<1.0E-15	b	b	a	a	Highest	2nd High	Lowest	2nd Low
Lead	<1.0E-15	<1.0E-15		a	b	b		Lowest	Highest	Middle
Manganese	0.000017	8.5E-07	a	a	b	a	2nd Low	Lowest	Highest	2nd High
Molybdenum	<1.0E-15	<1.0E-15		b		a		Highest		Lowest
Nickel	0.00022	0.003		b	ab	a		Middle	Lowest	Highest
Selenium	<1.0E-15	<1.0E-15		b		a		Highest		Lowest
Silver	1.1E-10	<1.0E-15		b		a		Highest		Lowest
Thallium	0.00041	0.00003		b		a		Highest		Lowest
Vanadium	<1.0E-15	<1.0E-15	b	b		a	Middle	Highest		Lowest
Zinc	<1.0E-15	<1.0E-15		a	b	b		Lowest	Highest	Middle

Notes: [a] Rankings based on median of log-transformed concentrations

Mercury was only measured by a one method class, therefore no comparisons were possible.
Multiple comparisons between method classes by Tukey's honest significant difference (HSD) at an overall 0.01 significance level (i.e., 99% confidence level The letters have no inherent meaning and are simply used to designate method classes that are similar or significantly different. Method classes not significantly different are indicated with the same letter.

ANOVA - analysis of variance
HSD - Tukey's honest significant difference
INAA - irradiated neutron activation analysis
LOI - loss on ignition
Partial Digestion - partial digestion methods
Total Digestion - total digestion methods

Boxplots

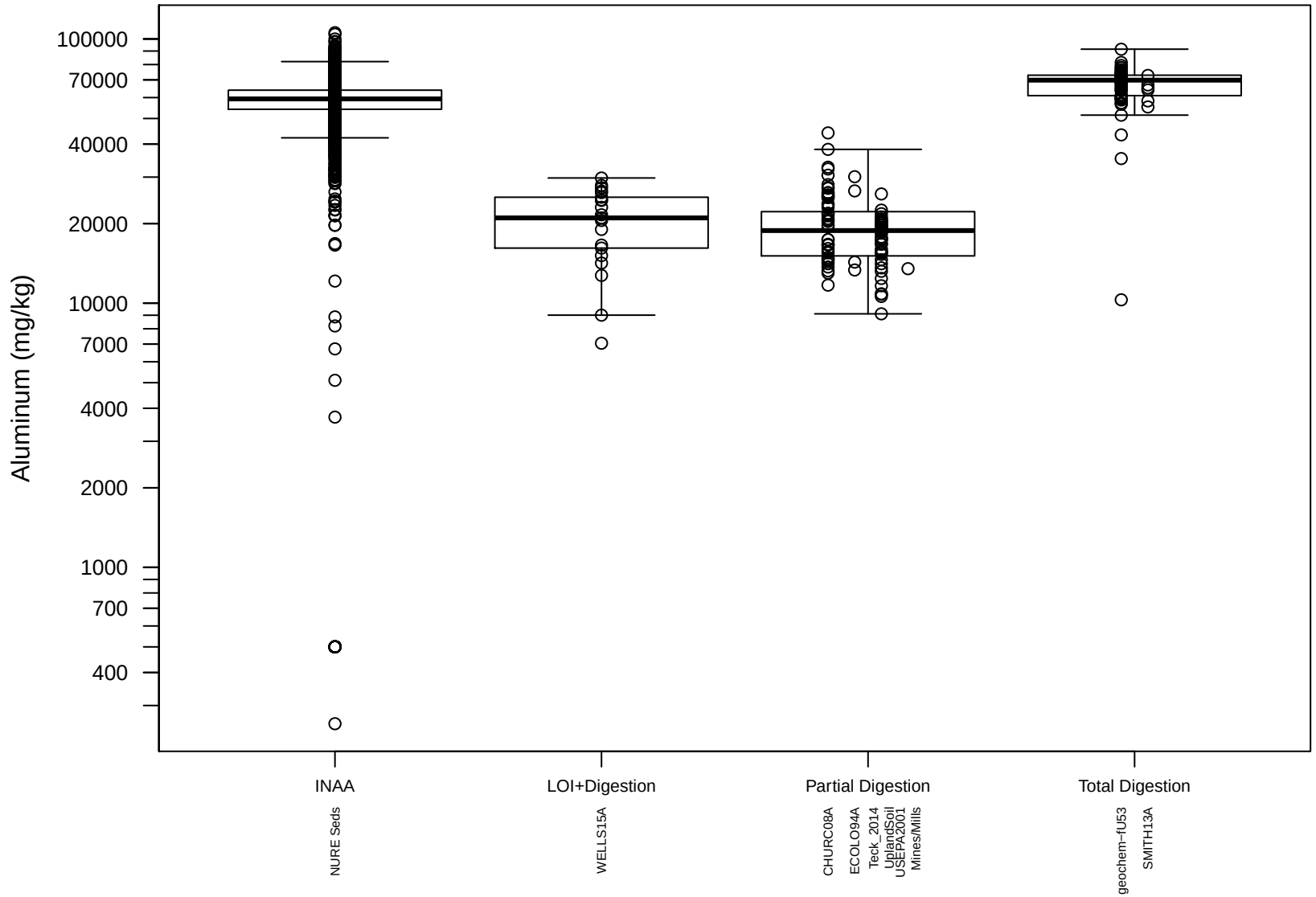


Figure B−1. Boxplots of aluminum concentrations by sample preparation method

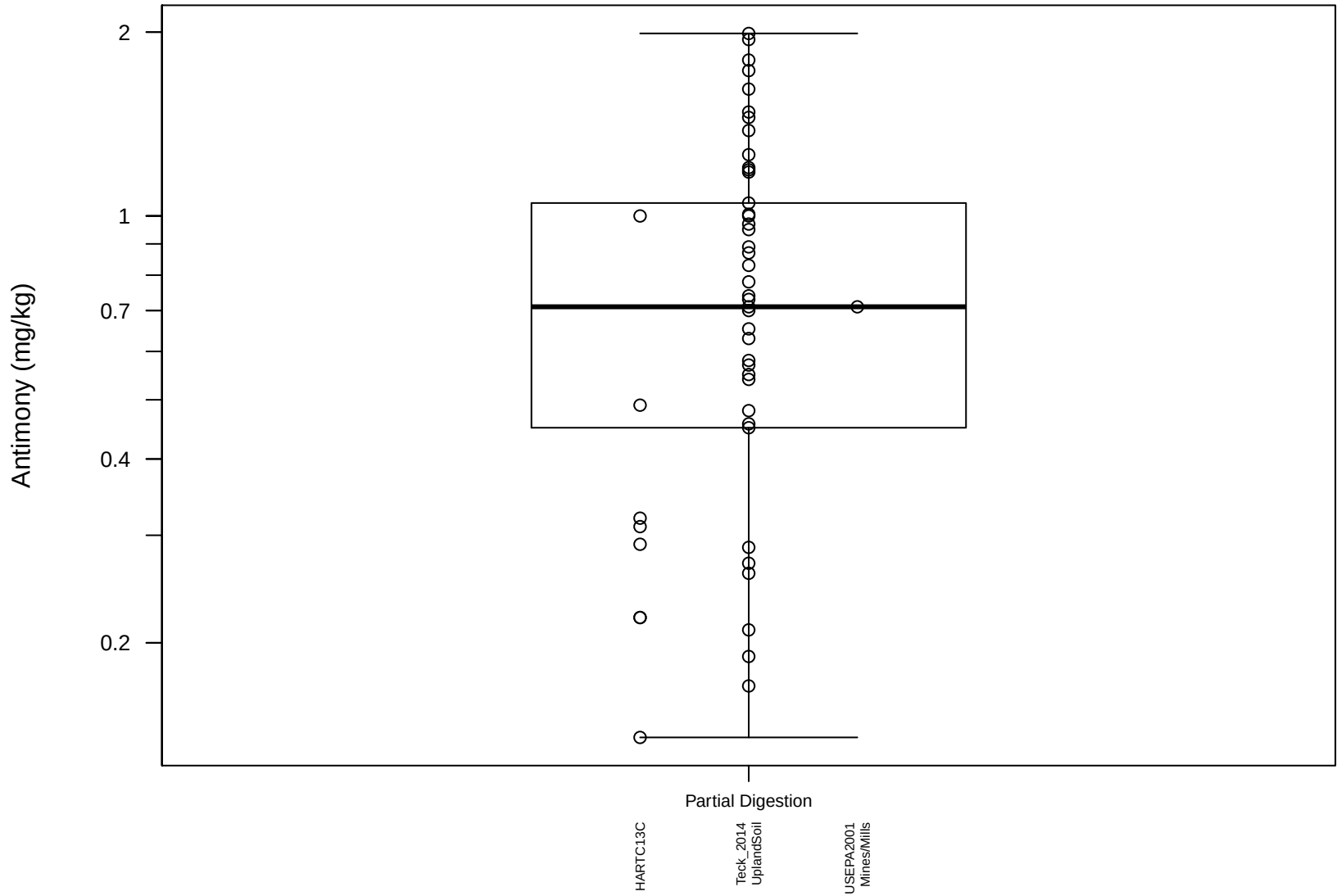


Figure B−2. Boxplots of antimony concentrations by sample preparation method

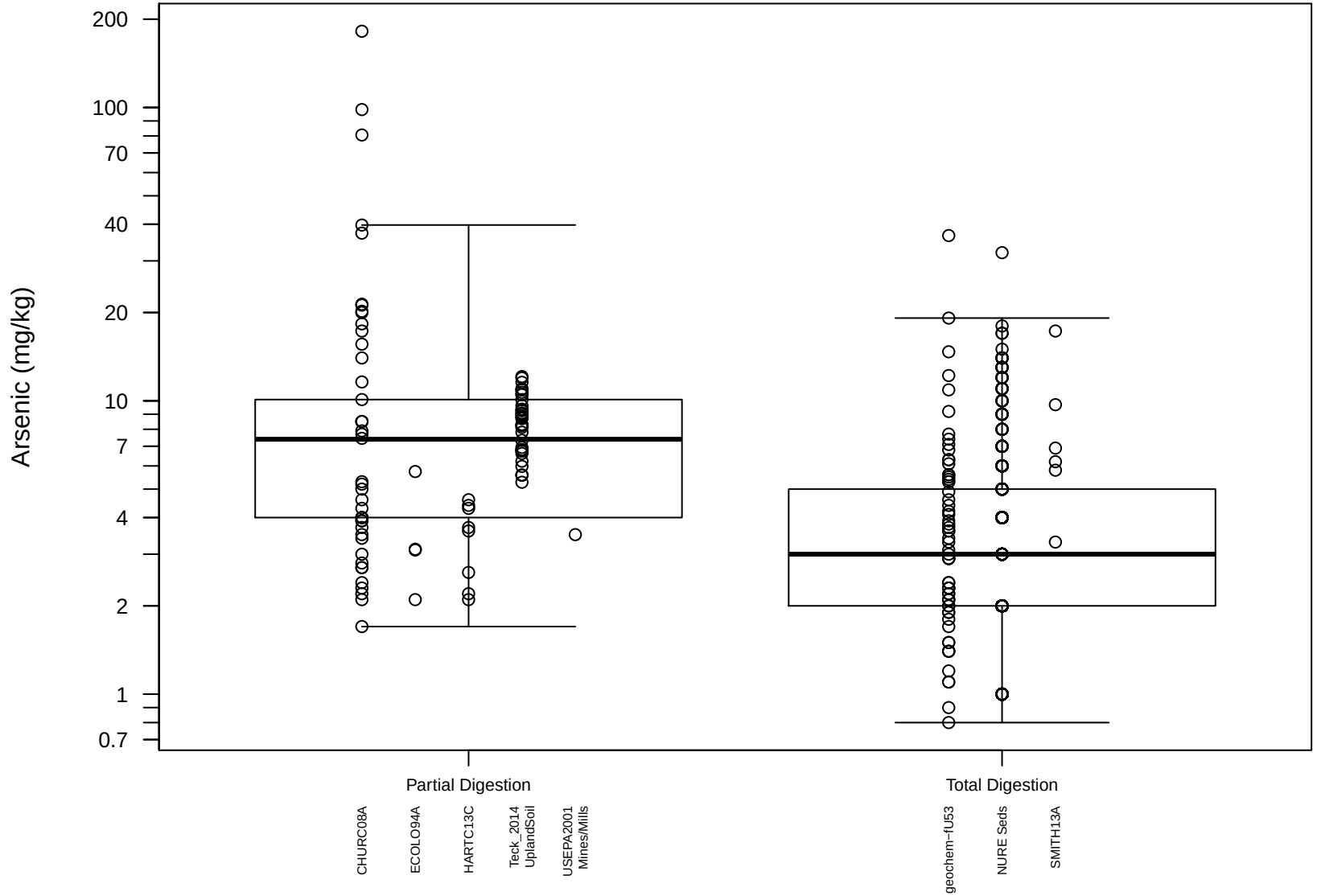


Figure B−3. Boxplots of arsenic concentrations by sample preparation method

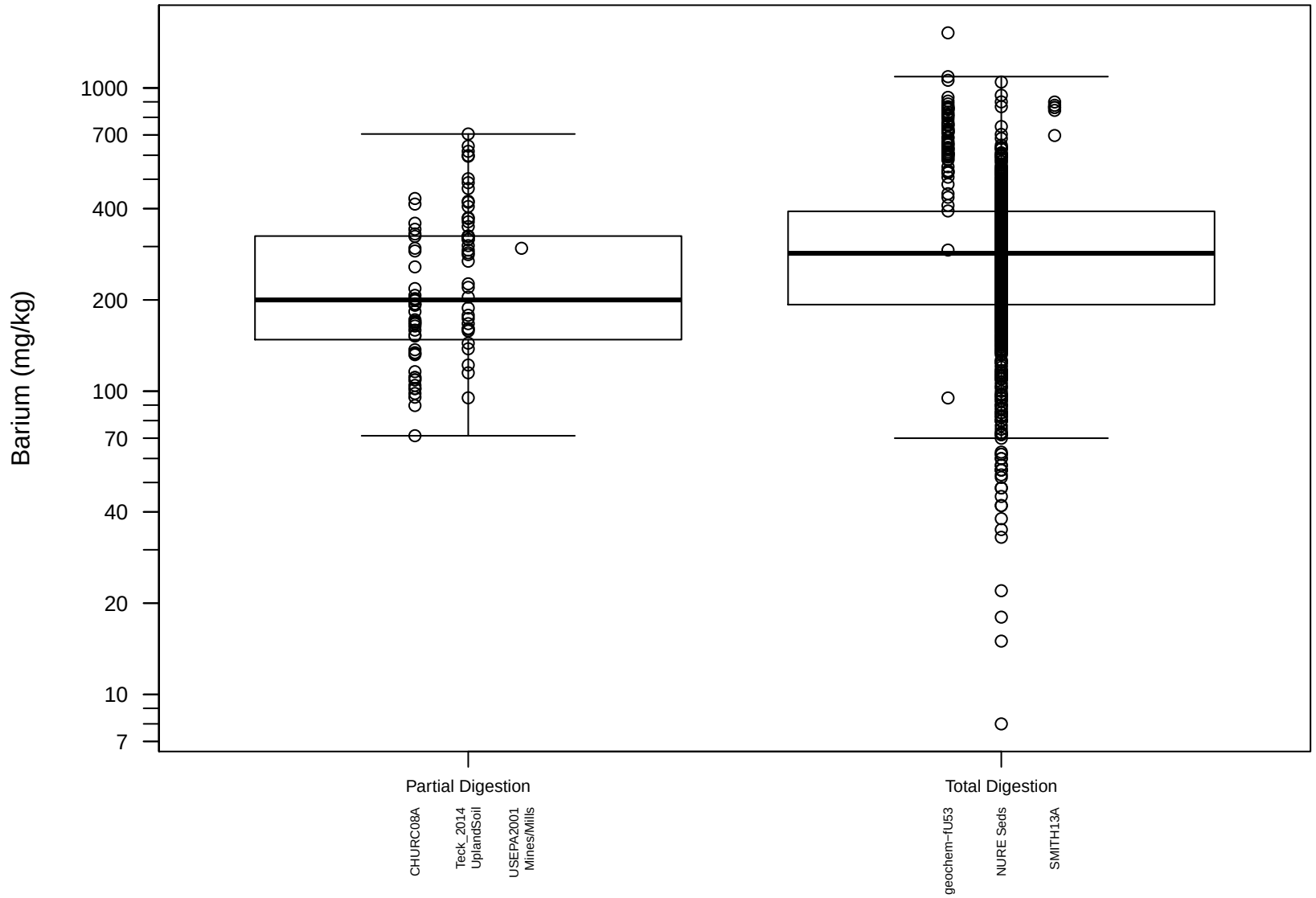


Figure B−4. Boxplots of barium concentrations by sample preparation method

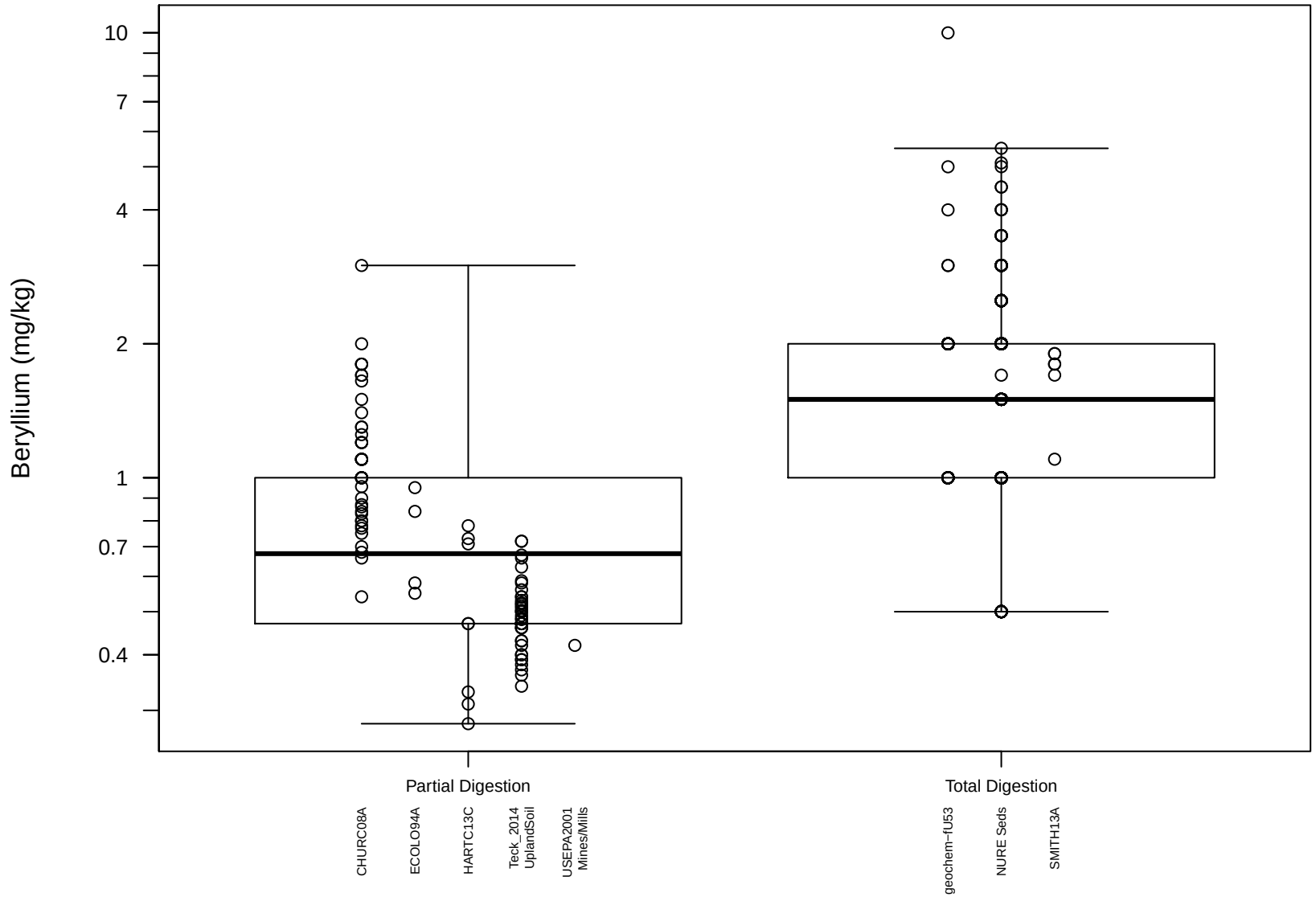


Figure B−5. Boxplots of beryllium concentrations by sample preparation method

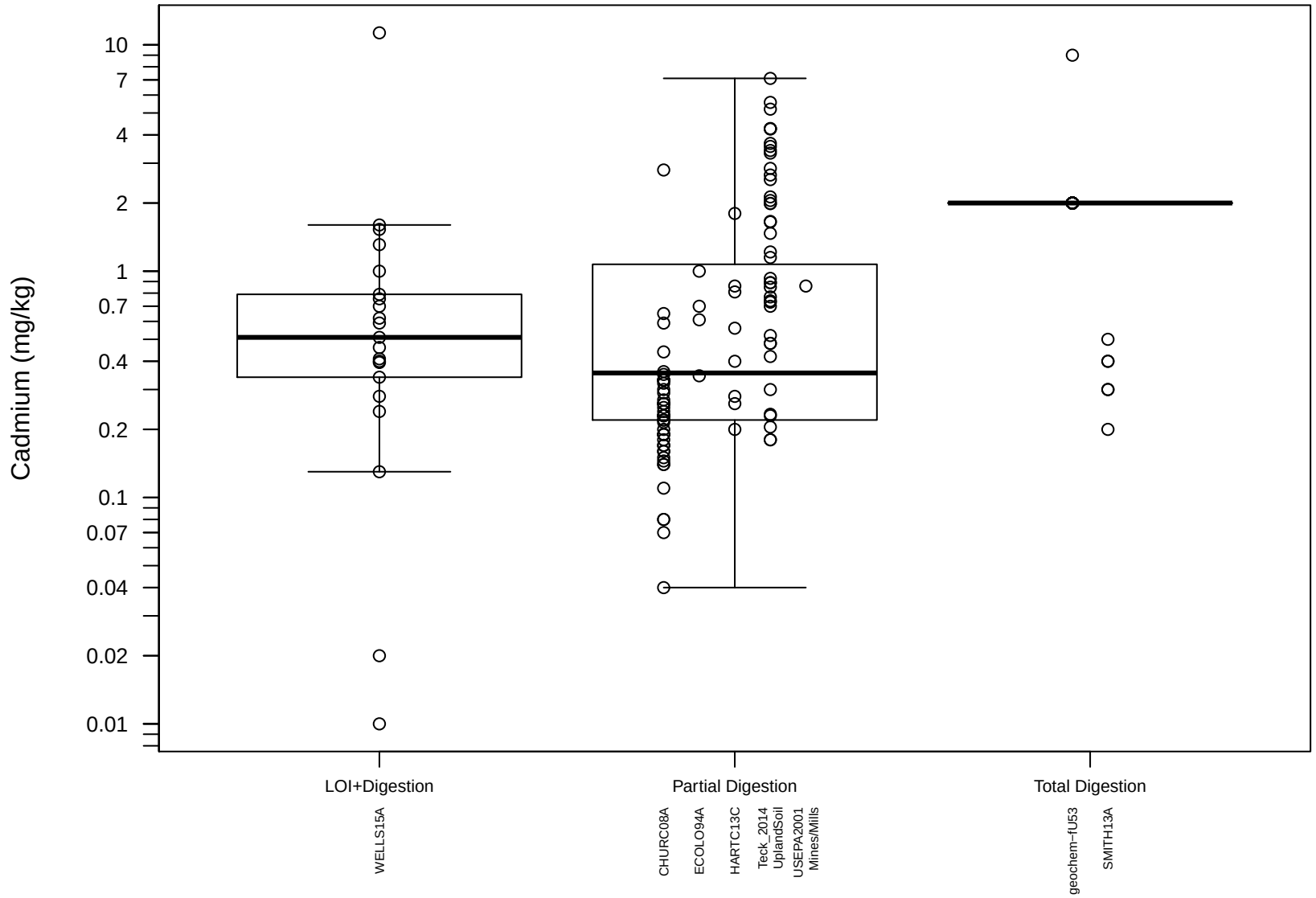


Figure B−6. Boxplots of cadmium concentrations by sample preparation method

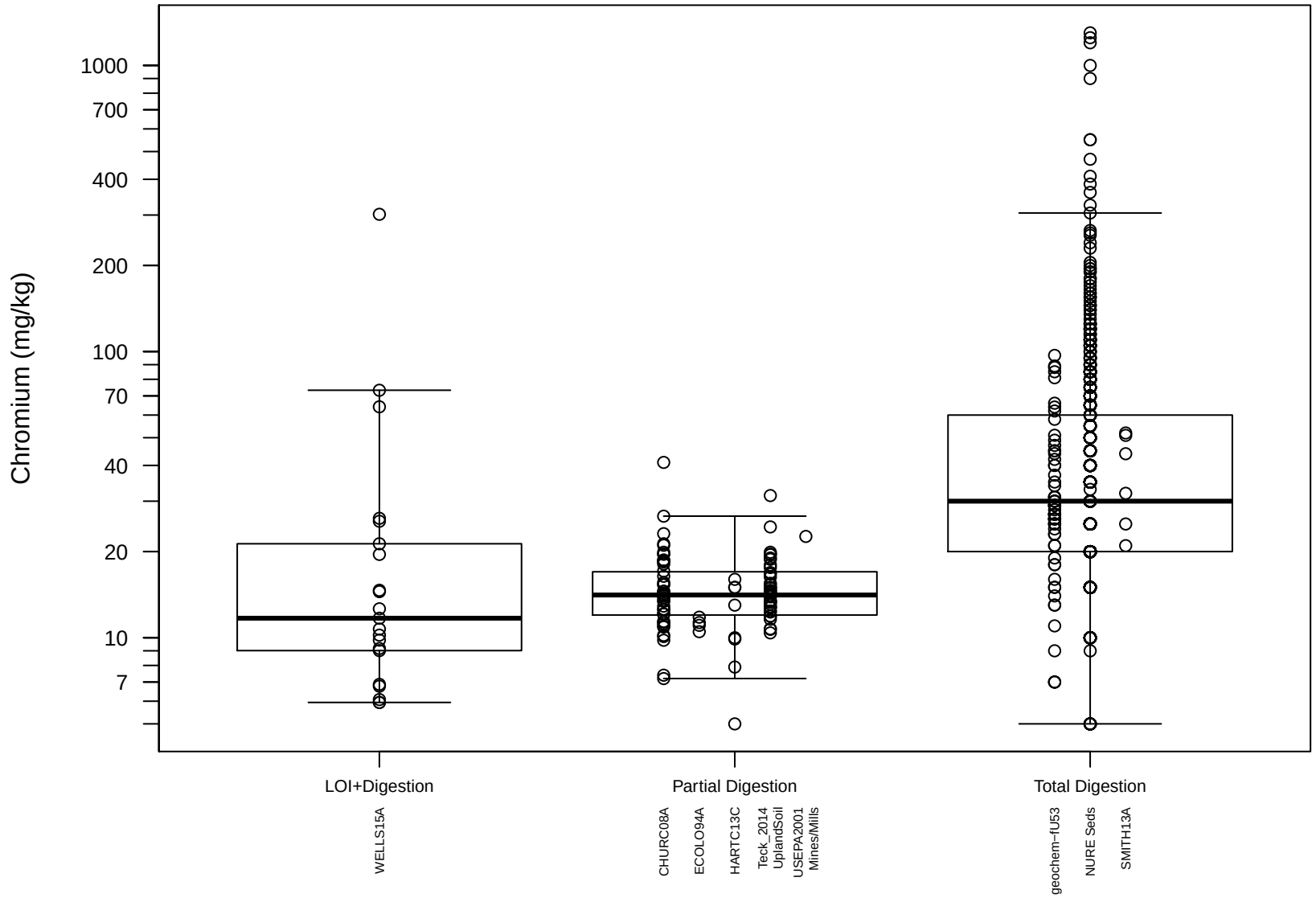


Figure B−7. Boxplots of chromium concentrations by sample preparation method

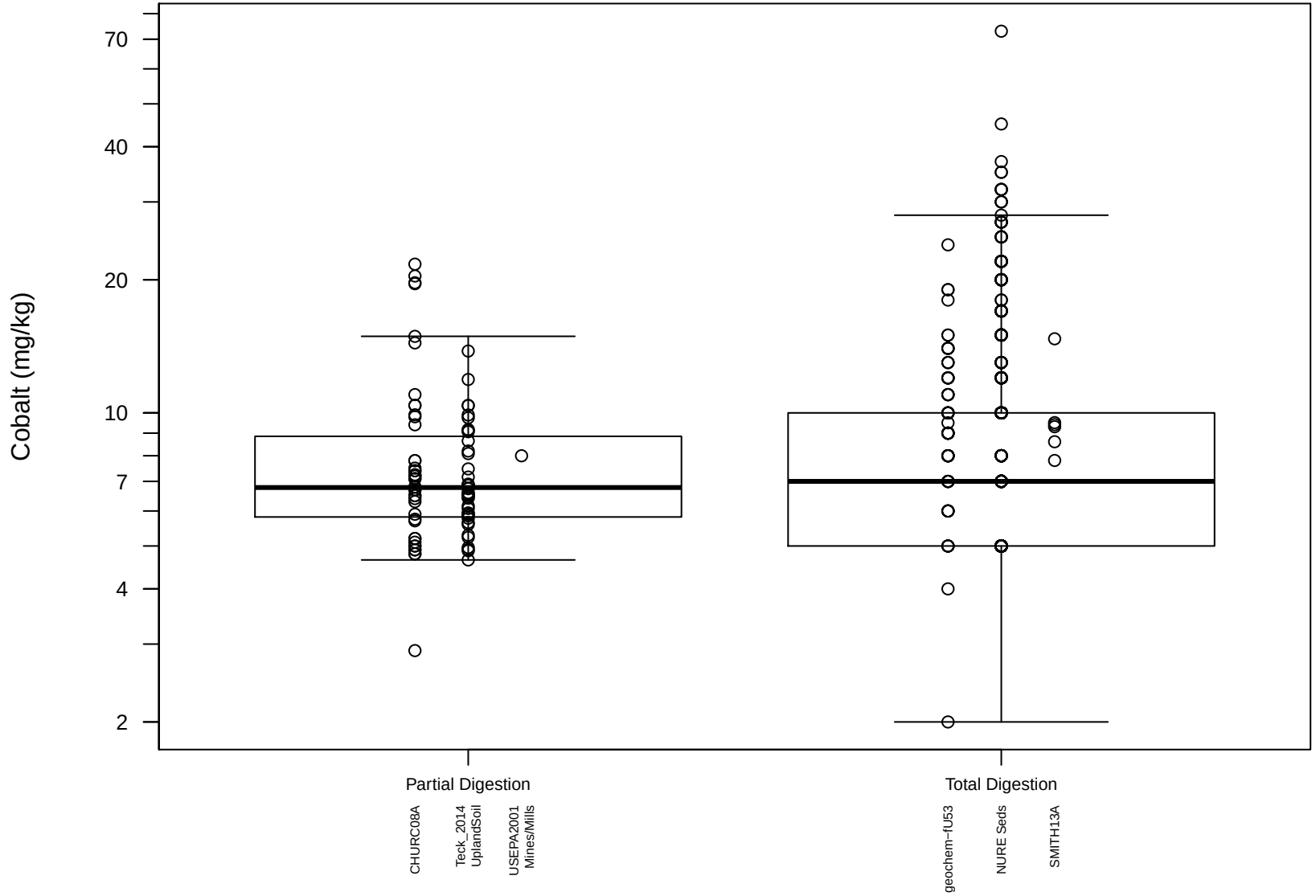


Figure B−8. Boxplots of cobalt concentrations by sample preparation method

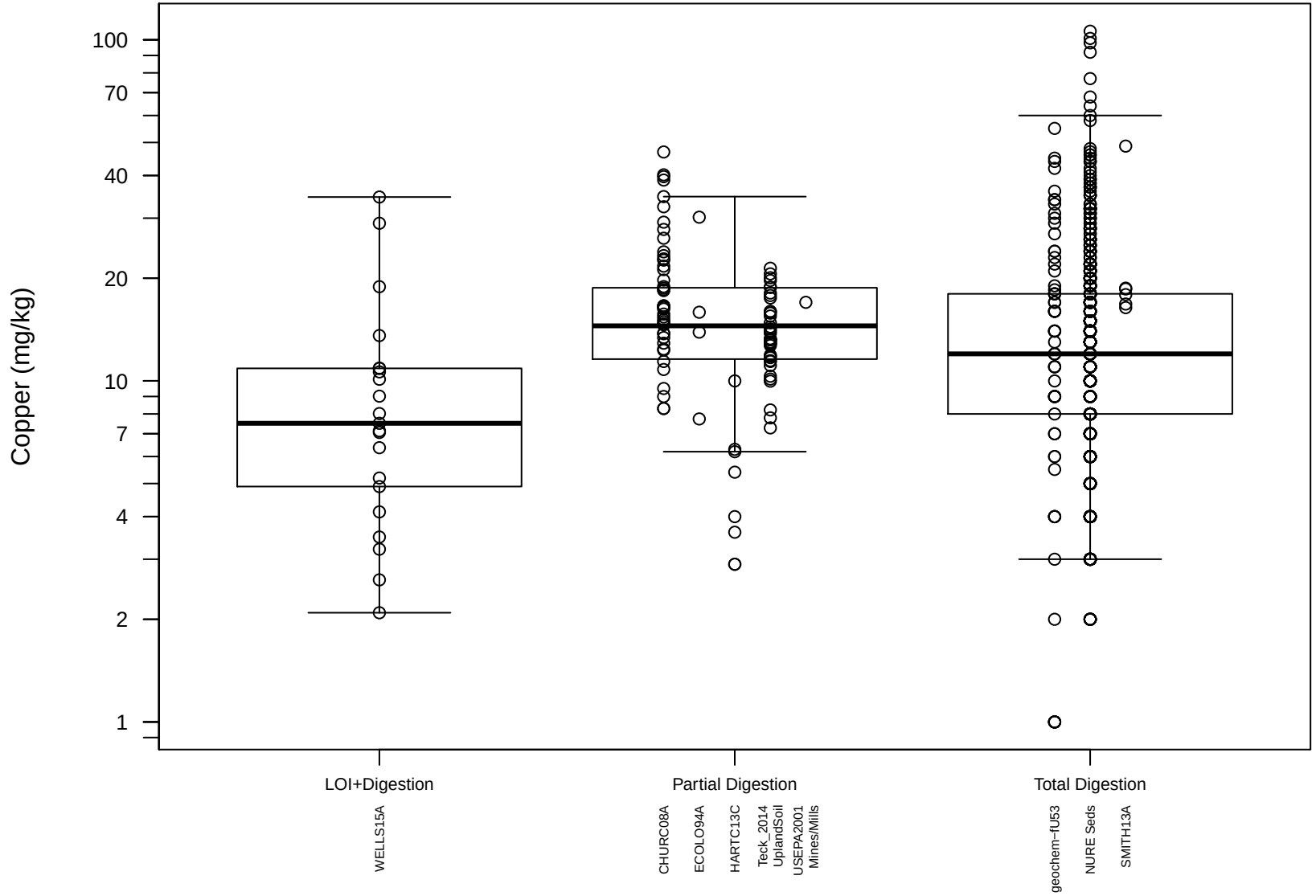


Figure B−9. Boxplots of copper concentrations by sample preparation method

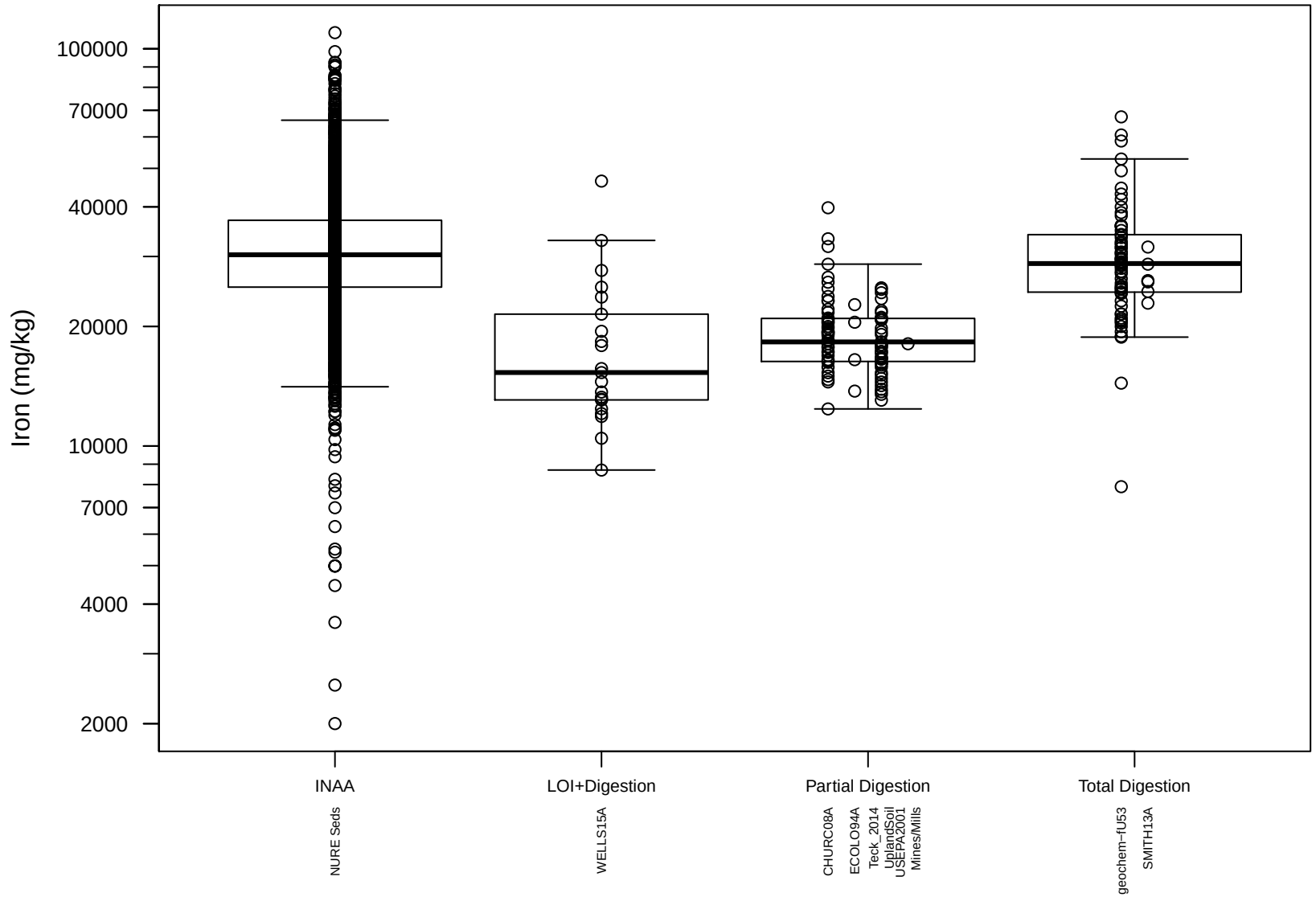


Figure B−10. Boxplots of iron concentrations by sample preparation method

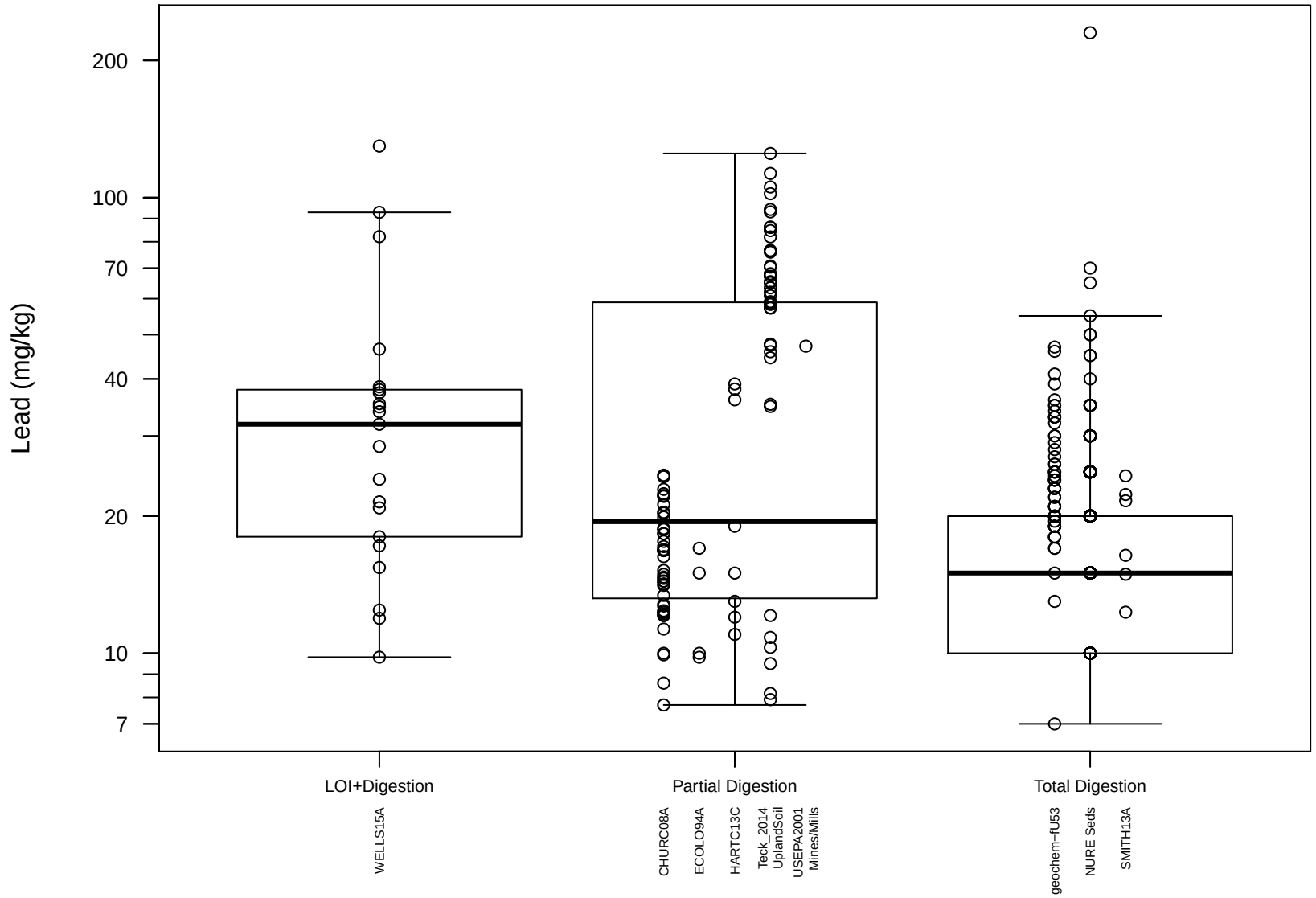


Figure B−11. Boxplots of lead concentrations by sample preparation method

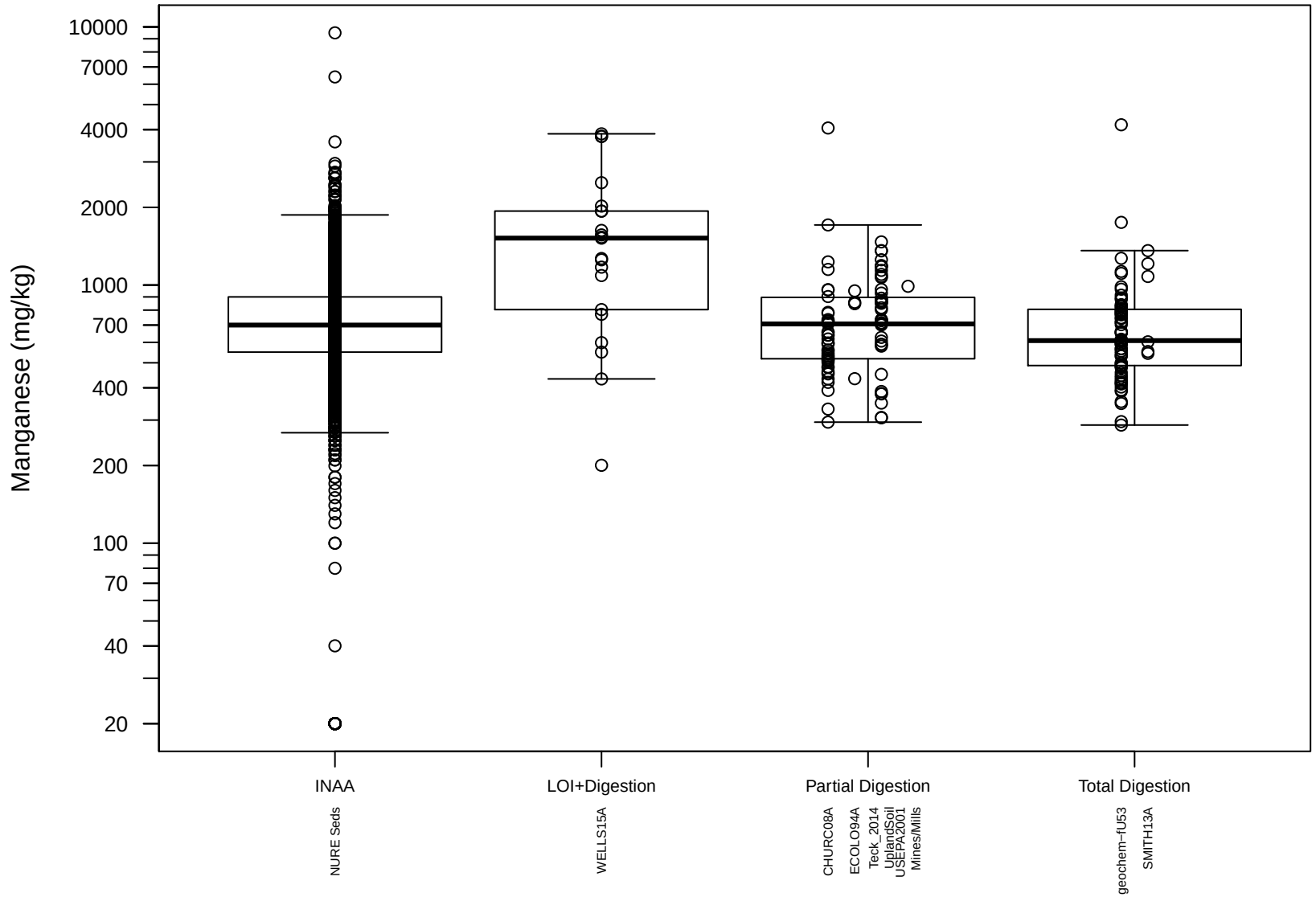


Figure B−12. Boxplots of manganese concentrations by sample preparation method

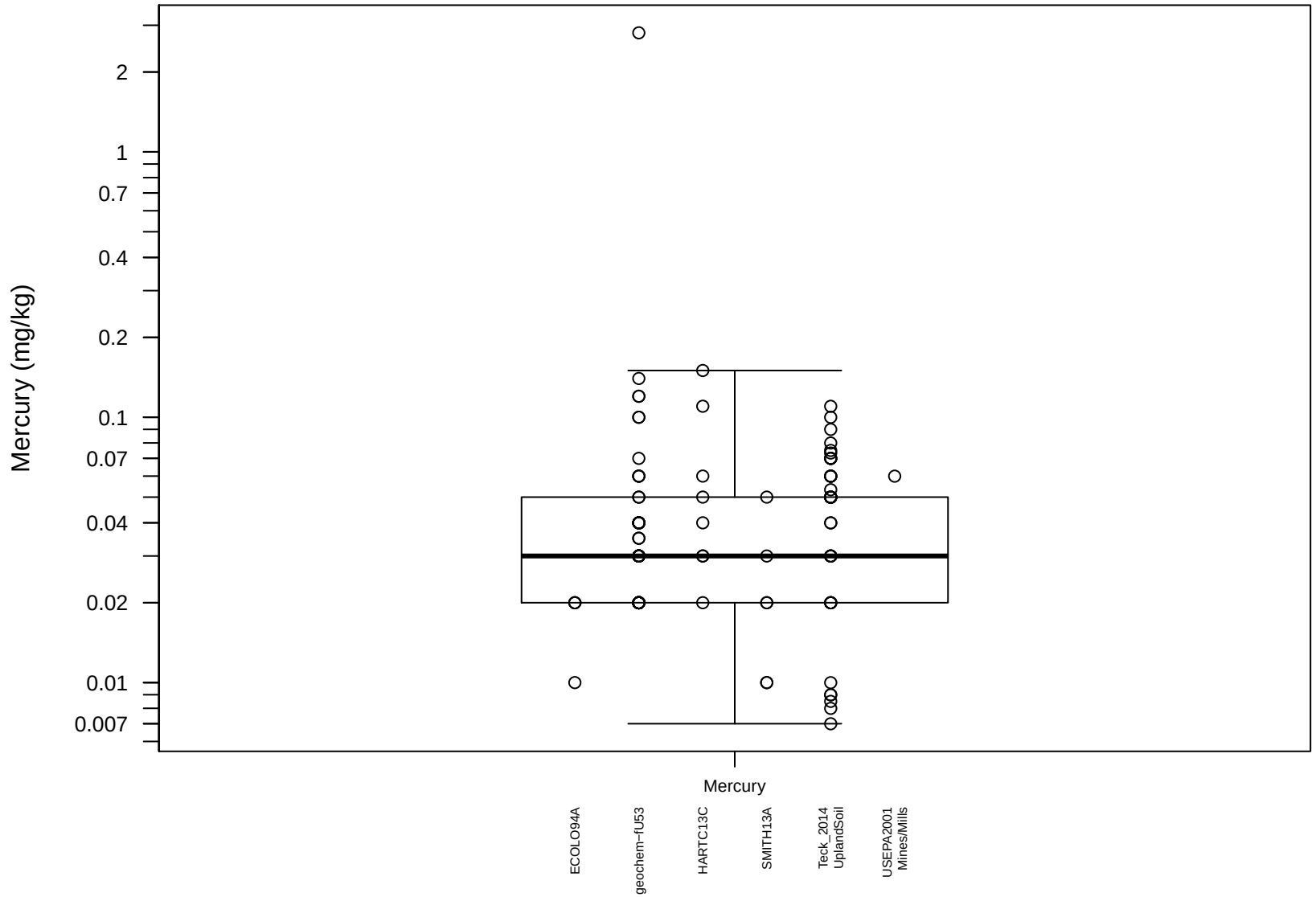


Figure B−13. Boxplots of mercury concentrations by sample preparation method

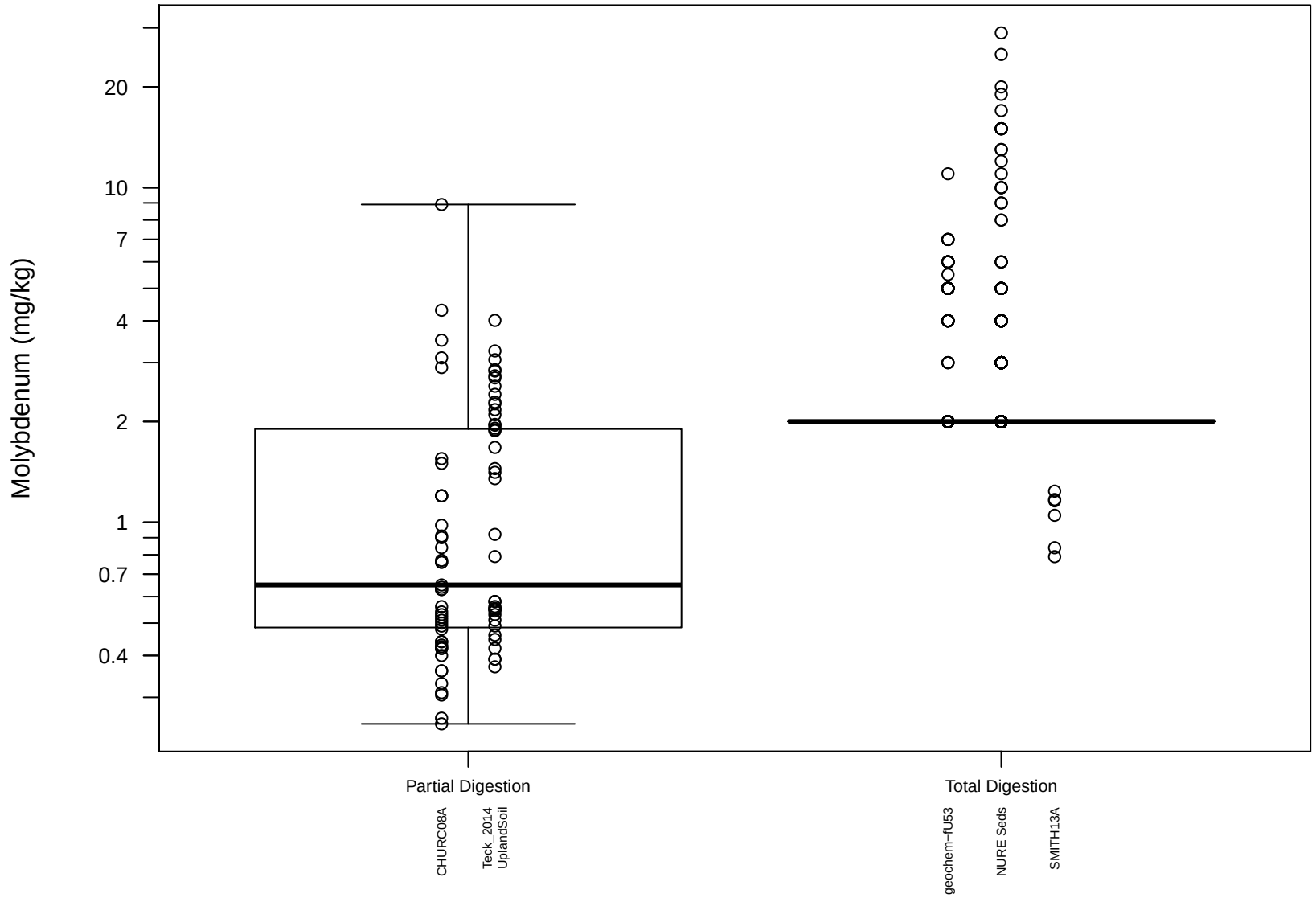


Figure B−14. Boxplots of molybdenum concentrations by sample preparation method

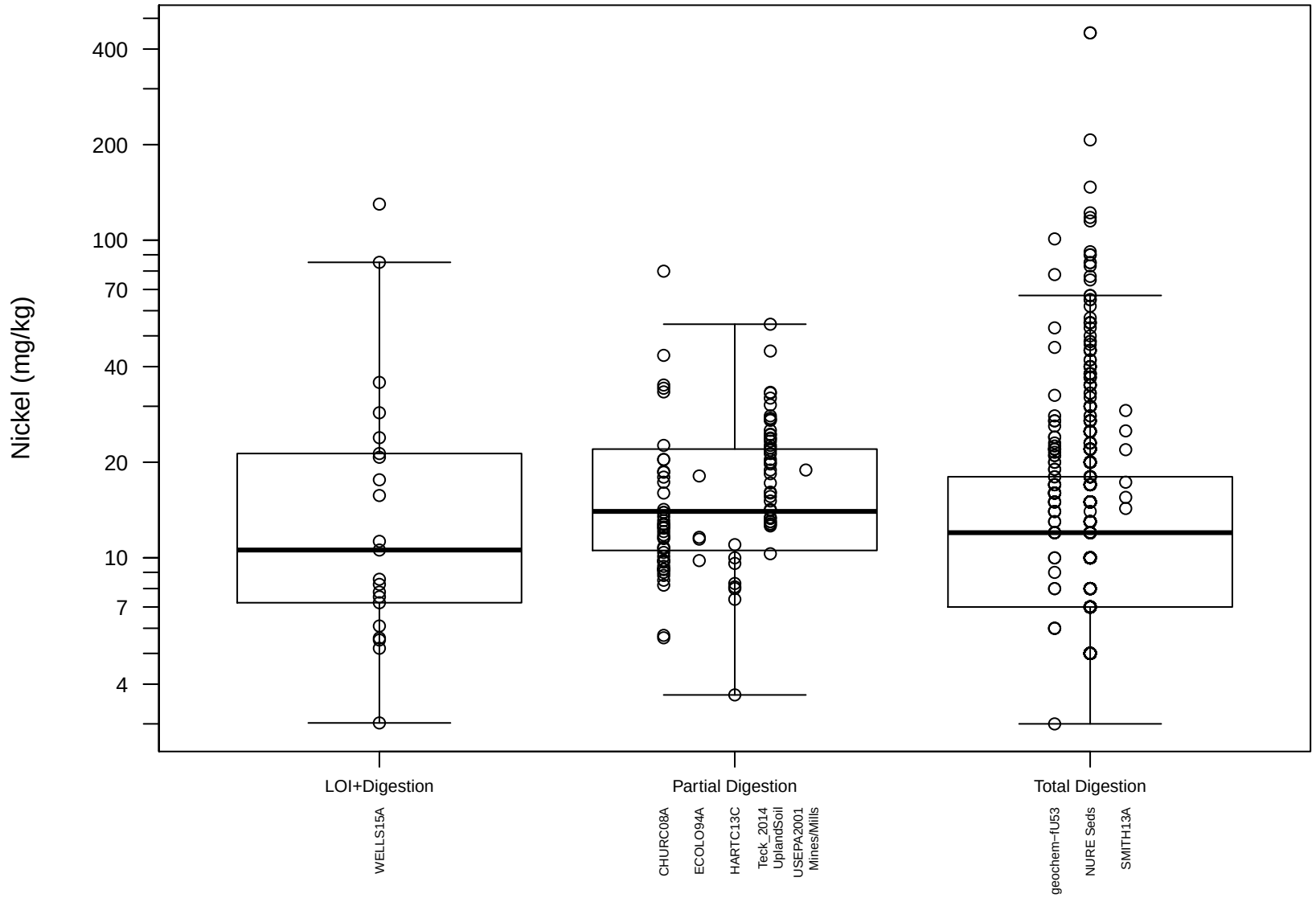


Figure B−15. Boxplots of nickel concentrations by sample preparation method

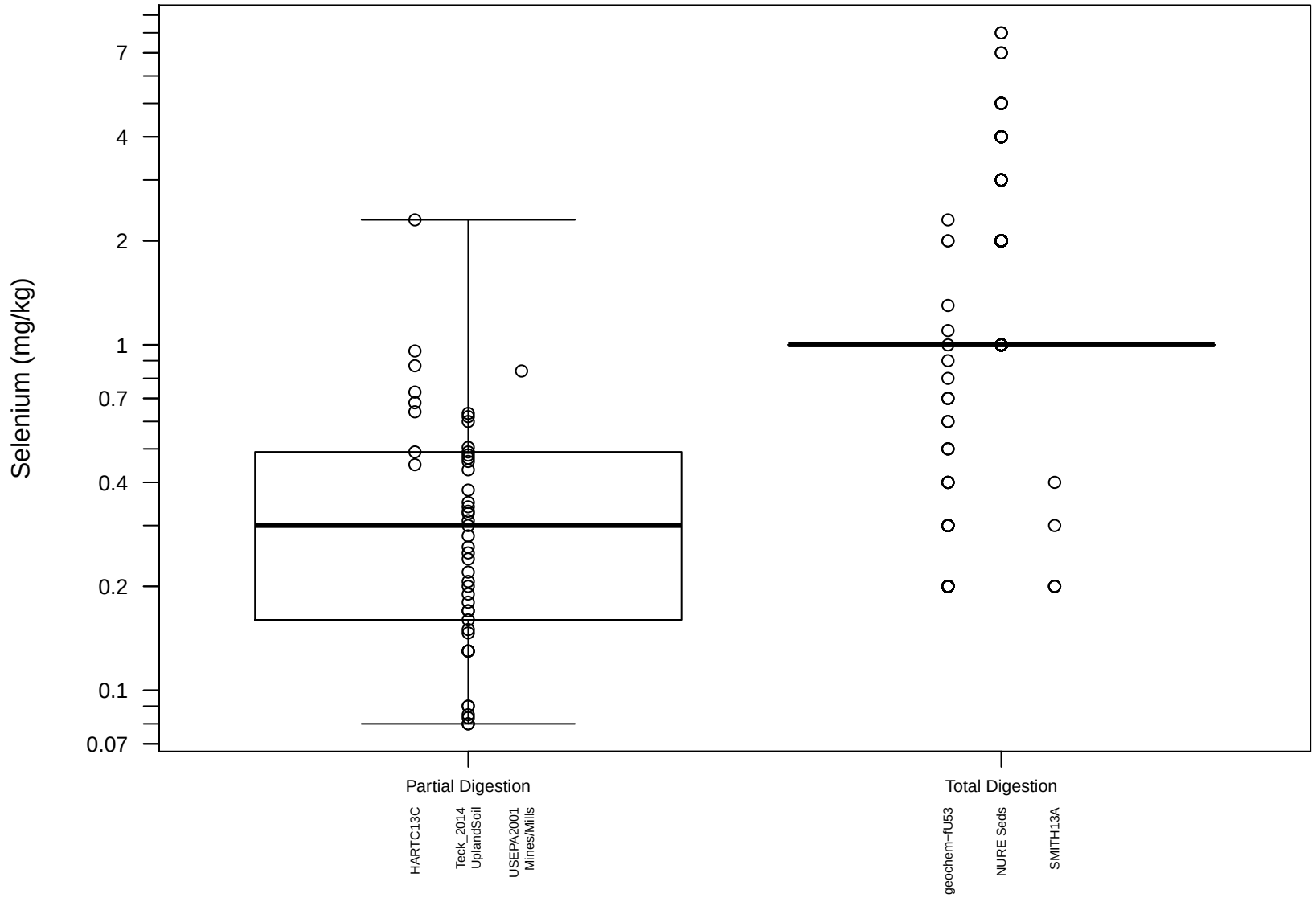


Figure B−16. Boxplots of selenium concentrations by sample preparation method

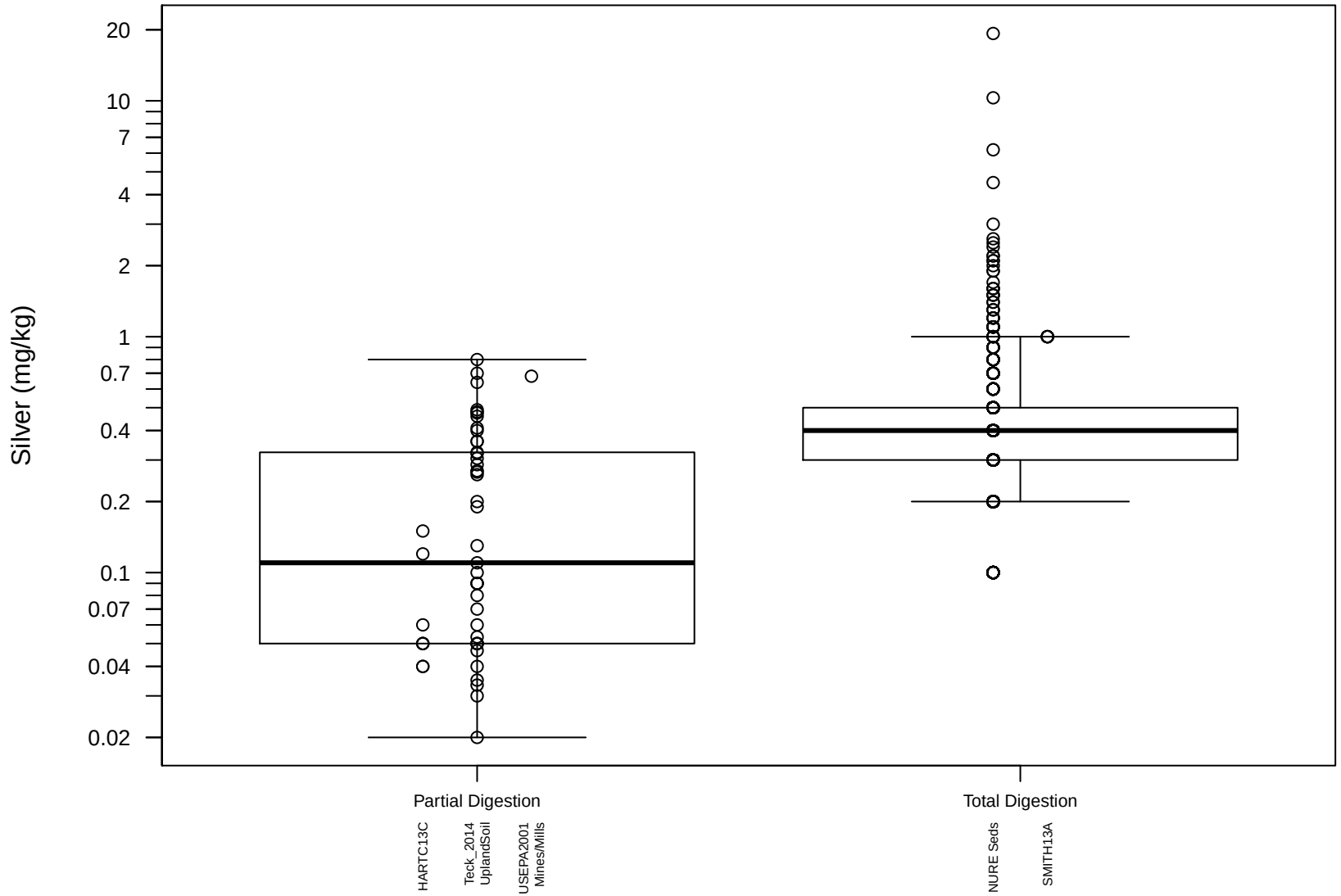


Figure B−17. Boxplots of silver concentrations by sample preparation method

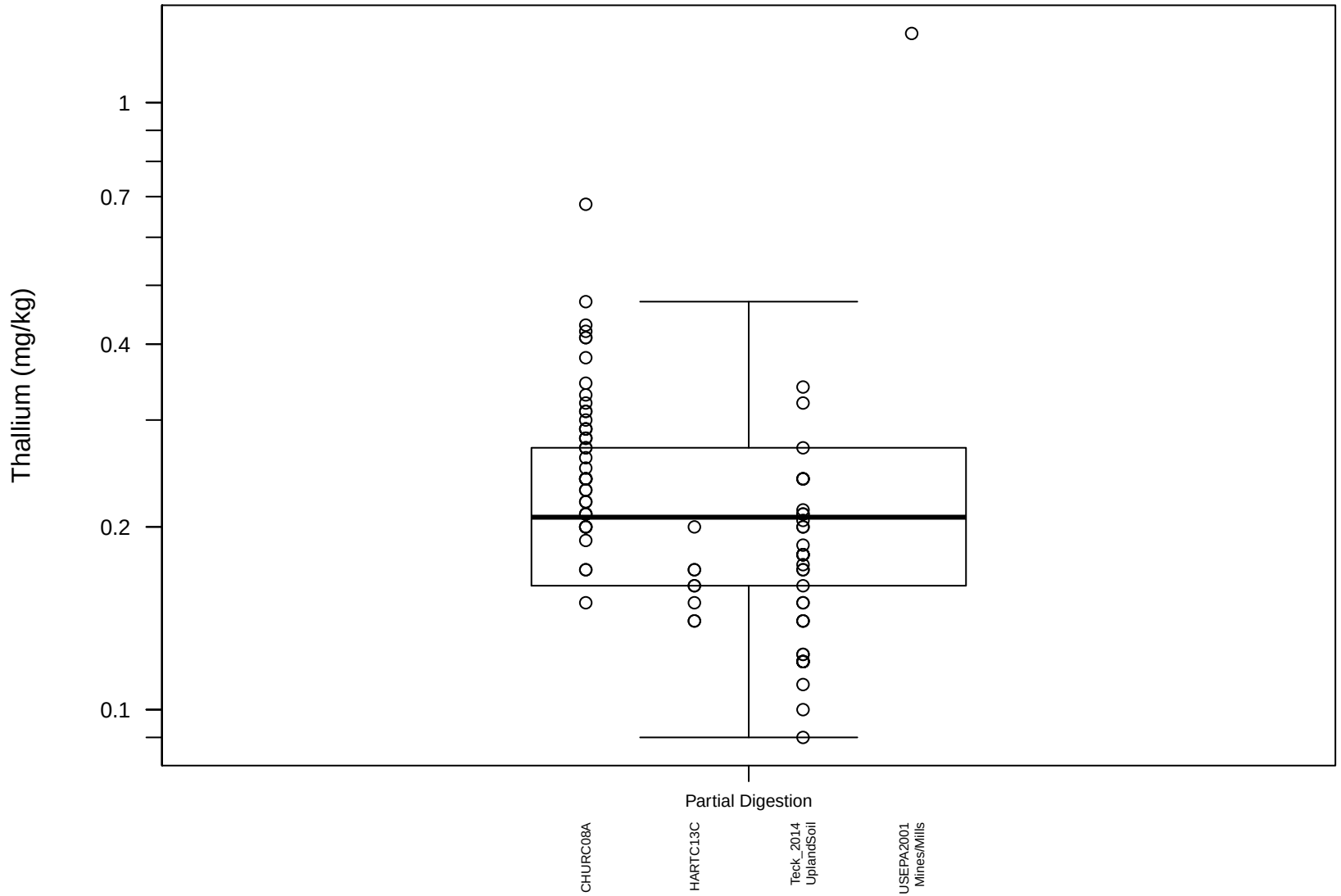


Figure B−18. Boxplots of thallium concentrations by sample preparation method

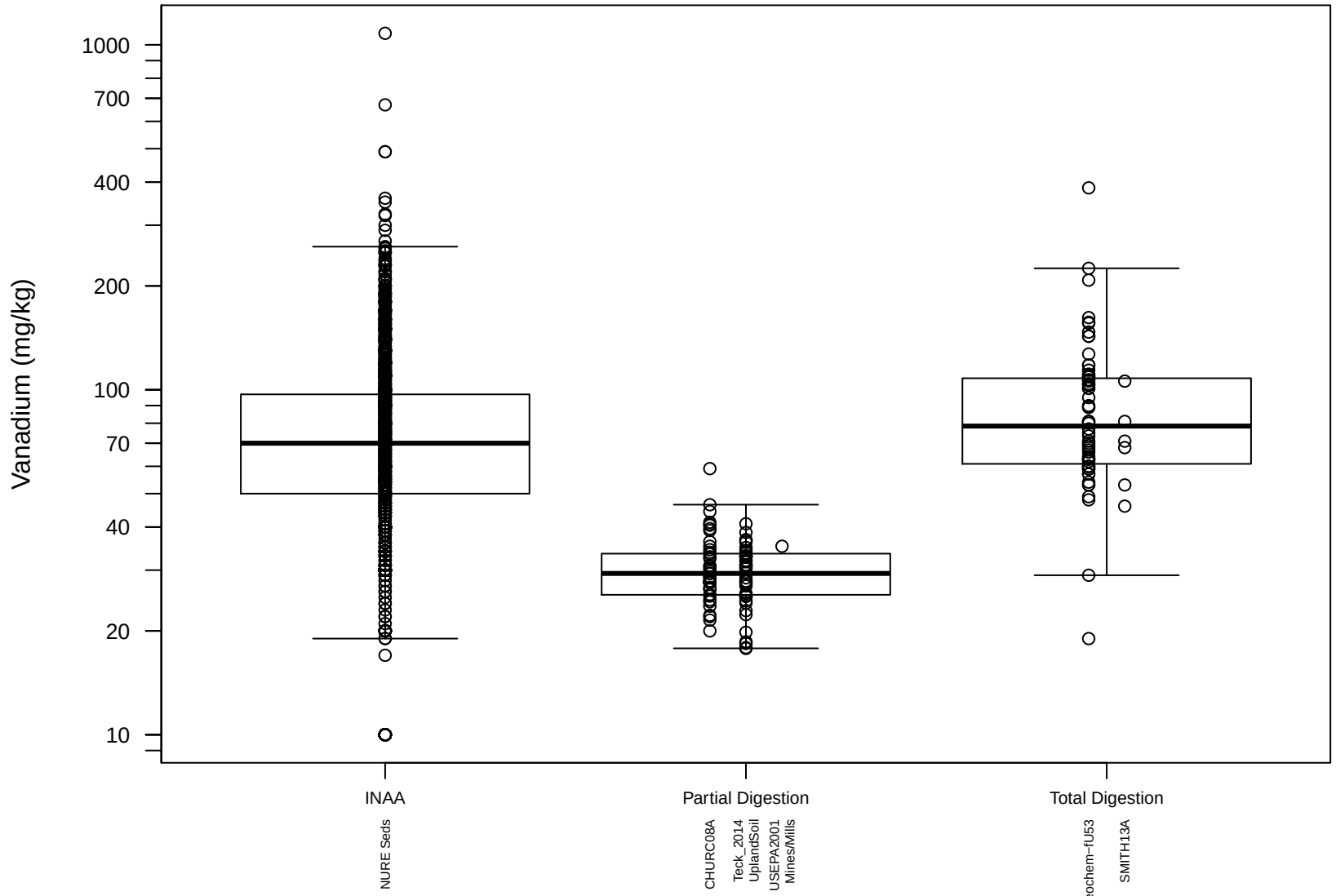


Figure B−19. Boxplots of vanadium concentrations by sample preparation method

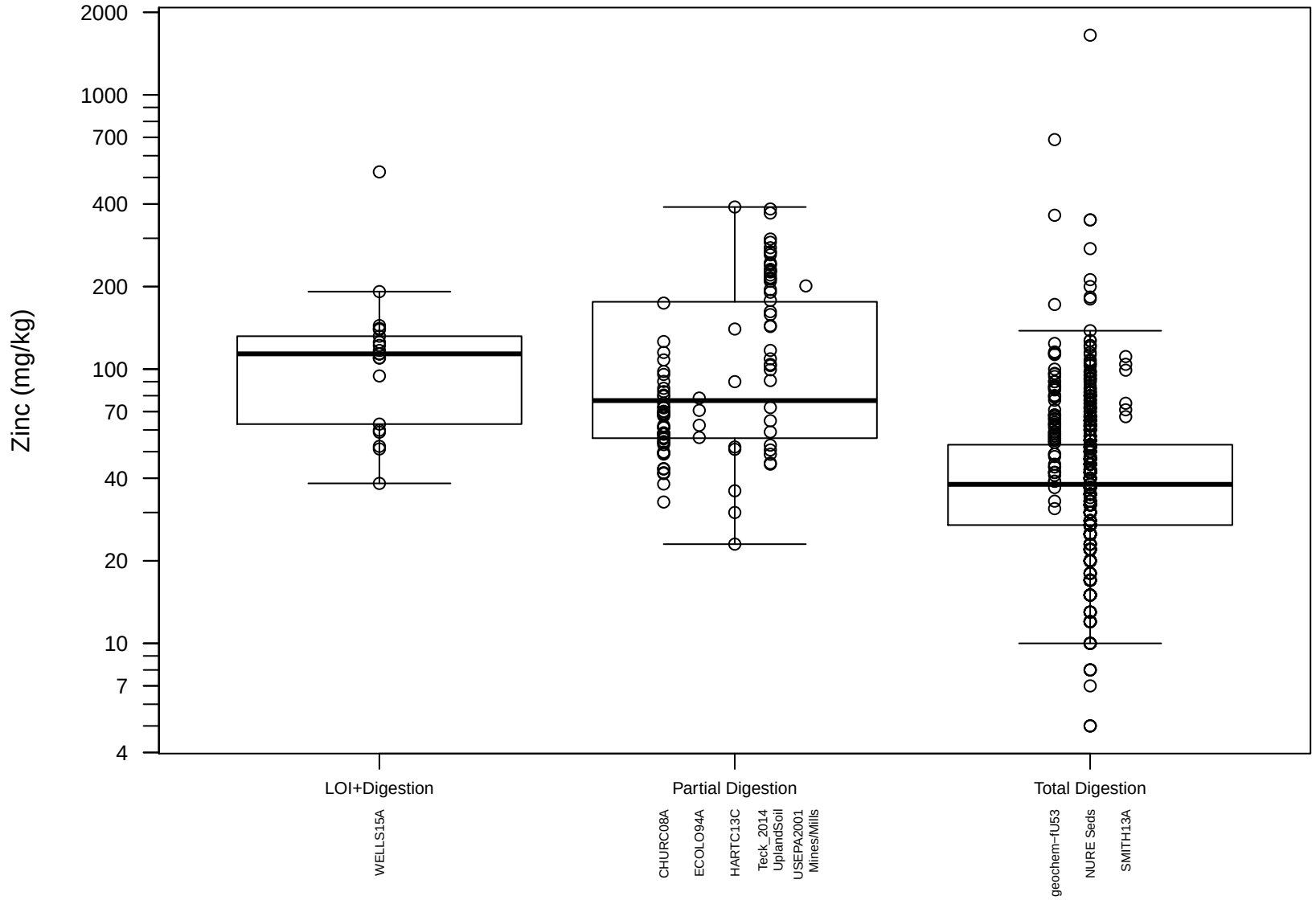


Figure B−20. Boxplots of zinc concentrations by sample preparation method

Attachment C

ProUCL Input Data, Output, and QQ-Plots for Final Background Datasets

Table C-1. Background threshold values for screened background samples analyzed by total metals methods

Metal/	Sample Count		Range (mg/kg)			Arith.	Geo.		Distributional Assessment			High Outliers[b]			BTV
Metalloid	N	ND	Min(ND)	Min(Det)	Max(Det)	Mean[a]	Mean[a]	Median	Normal	Gamma	Lognormal	QQ-Plot	Tests	BTV Method	(mg/kg)
Aluminum	3,148	38	500	256	105,500	58,602	55,050	59,404	No	No	No	0	0	NonParametric	73,800
Antimony	6	0	NA	0.39	2.0	1.1	1.0	1.1	Yes	Yes	Yes	0	0	Normal	3.0 [c]
Arsenic	701	0	NA	0.80	36.6	3.7	2.8	3.0	No	No	No	2	10+	NonParametric	12.0
w/o 2 outliers	699	0	NA	0.80	19.2	3.7	2.7	3.0	No	No	No	NA	NA	NonParametric	12.0
Barium	845	0	NA	8.0	1,520	316	267	285	No	No	No	0	0	NonParametric	722
Beryllium	845	17	0.50	0.50	10.0	1.7	1.5	1.5	No	No	No	1	5	NonParametric	3.0
w/o 1 outlier	844	17	0.50	0.50	5.5	1.7	1.5	1.5	No	No	No	NA	NA	NonParametric	3.0
Cadmium	68	61	2.0	0.20	9.0	2.0	1.7	2.0	No	No	No	1	1	NonParametric	2.0
w/o 1 outlier	67	61	2.0	0.20	0.50	1.9	1.7	2.0	Yes	Yes	Yes	NA	NA	KM Normal	0.54 [c]
Chromium	850	0	NA	5.0	1,300	54.5	35.6	30.0	No	No	No	5	10+	NonParametric	155
w/o 5 outliers	845	0	NA	5.0	550	48.1	34.9	30.0	No	No	No	NA	NA	NonParametric	140
Cobalt	847	205	5.0	2.0	73.0	8.7	7.6	7.0	No	No	No	1	10+	NonParametric	22.0
w/o 1 outlier	846	205	5.0	2.0	45.0	8.7	7.5	7.0	No	No	No	NA	NA	NonParametric	22.0
Copper	804	1	2.0	1.0	106	14.6	11.6	12.0	No	No	No	0	0	NonParametric	37.0
Iron	3,099	5	5,000	2,000	109,700	32,004	30,297	30,300	No	No	No	0	0	NonParametric	52,500
Lead	845	178	10.0	7.0	230	15.4	14.0	15.0	No	No	No	1	10+	NonParametric	30.0
w/o 1 outlier	844	178	10.0	7.0	70.0	15.2	13.9	15.0	No	No	No	NA	NA	NonParametric	30.0
Manganese	3,142	30	20.0	40.0	9,490	759	681	700	No	No	No	2	0	NonParametric	1,380
Molybdenum	850	537	2.0	0.79	29.0	2.6	2.3	2.0	No	No	No	0	0	NonParametric	6.0
Nickel	846	93	3.0	5.0	450	16.7	12.0	12.0	No	No	No	2	10+	NonParametric	46.0
w/o 2 outliers	844	93	3.0	5.0	207	15.6	11.9	12.0	No	No	No	NA	NA	NonParametric	45.0
Selenium	853	589	0.20	0.20	8.0	1.2	1.0	1.0	No	No	No	0	0	NonParametric	3.0
Silver	827	25	0.10	0.10	19.3	0.49	0.36	0.40	No	No	No	4	10+	NonParametric	1.1
w/o 4 outliers	823	25	0.10	0.10	3.0	0.45	0.36	0.40	No	No	No	NA	NA	NonParametric	1.1
Thallium	6	0	NA	0.30	0.70	0.48	0.46	0.50	Yes	Yes	Yes	0	0	Normal	1.1 [c]
Vanadium	3,129	75	10.0	10.0	1,080	79.8	69.6	70.0	No	No	No	4	2	NonParametric	160
w/o 2 outliers	3,127	75	10.0	10.0	490	79.3	69.5	70.0	No	No	No	NA	NA	NonParametric	160
Zinc	847	0	NA	5.0	1,650	47.1	37.7	38.0	No	No	No	2	5	NonParametric	99.0
w/o 2 outliers	845	0	NA	5.0	364	44.4	37.4	38.0	No	No	Yes	NA	NA	Lognormal	101

Notes on following page.

Table C-1. (Continued)

Notes: [a] Concentrations below detection limits are included at the result specific detection limit

[b] High concentration outliers determined from visual inspection of QQ-plots and formal outlier tests (Dixon or Rosner) based on log-transformed concentrations except antimony and thallium (follow a normal distribution, therefore measured concentrations used) with ND results excluded

[c] BTV is higher than the maximum detected concentration.

Arith. Mean	- arithmetic mean
BTV	- background threshold value (rounded to three significant figures or two significant figures if less than 10 mg/kg)
DQOs	- data quality objectives
Geo. Mean	- geometric mean
KM	- Kaplan-Meier
Max(Det)	- maximum of detected concentrations
Min(Det)	- minimum of the detected concentrations
Min(ND)	- minimum of the specified detection limits
N	- number of samples
NA	- not applicable
ND	- number of samples with concentrations below the detection limit
w/o 2 outliers	- values calculated without 2 highest concentration outliers; minimum number of outliers identified by QQ-plots and tests.

Table C-2. Background threshold values for screened background samples analyzed by partial digestion and mercury methods

Metal/	Sample Count		Range (mg/kg)			Arith.	Geo.		Distributional Assessment			High Outliers[c]			BTV
Metalloid	N[a]	ND	Min(ND)	Min(Det)	Max(Det)	Mean[b]	Mean[b]	Median	Normal	Gamma	Lognormal	QQ-Plot	Tests	BTV Method	(mg/kg)
Partial Digestion															
Aluminum	52	0	NA	9,110	44,100	20,568	19,294	20,100	No	Yes	Yes	0	0	Lognormal	40,500
Antimony	6	0	NA	0.17	0.29	0.23	0.23	0.24	Yes	Yes	Yes	0	0	Normal	0.41
Arsenic	52	0	NA	1.7	182	14.8	7.1	5.4	No	No	No	5	1	NonParametric	98.4
w/o 1 outlier	51	0	NA	1.7	98.4	11.6	6.7	5.3	No	No	No	NA	NA	NonParametric	80.6
w/o 5 outliers[d]	47	0	NA	1.7	21.4	7.1	5.5	5.2	No	Yes	Yes	NA	NA	Lognormal	23.3 [e]
Barium	48	0	NA	89.7	432	183	167	162	No	Yes	Yes	0	0	Lognormal	395
Beryllium	52	0	NA	0.34	3.0	1.0	0.94	1.0	No	Yes	Yes	0	0	Lognormal	2.4
Cadmium	52	0	NA	0.040	1.0	0.27	0.23	0.23	No	Yes	Yes	0	0	Lognormal	0.74
Chromium	52	0	NA	7.2	41.0	15.1	14.4	14.2	No	Yes	Yes	1	1	Lognormal	27.1
w/o 1 outlier	51	0	NA	7.2	26.6	14.6	14.1	14.1	Yes	Yes	Yes	NA	NA	Gamma, WH	23.8
Cobalt	48	0	NA	2.9	21.7	7.9	7.2	6.8	No	No	No	5	0	Non-Parametric	20.4
Copper	52	0	NA	7.74	46.9	18.9	17.2	16.0	No	No	Yes	0	0	Lognormal	41.5
Iron	52	0	NA	12,400	39,800	19,853	19,293	19,200	No	No	Yes	3	0	Lognormal	31,200
Lead	52	0	NA	7.7	24.6	15.1	14.4	14.7	Yes	Yes	Yes	0	0	Lognormal	27.2 [e]
Manganese	52	0	NA	295	1,710	621	578	554	No	Yes	Yes	1	0	Lognormal	1,240
Molybdenum	48	0	NA	0.25	8.9	0.95	0.66	0.54	No	No	No	4	4	Non-Parametric	3.5
w/o 4 outliers	44	0	NA	0.25	1.6	0.62	0.56	0.52	No	No	Yes	NA	NA	Lognormal	1.4
Nickel	52	0	NA	5.6	43.4	14.3	13.0	12.5	No	No	No	4	0	Non-Parametric	35.0
Selenium	6	1	0.19	0.080	0.090	0.084	0.096	0.084	Yes	Yes	Yes	1	1	Gamma, WH	0.098 [e]
w/o 1 outlier	5	0	NA	0.080	0.090	0.084	0.084	0.083	Yes	Yes	Yes	NA	NA	Gamma, WH	0.10 [e]
Silver	6	0	NA	0.020	0.050	0.037	0.035	0.038	Yes	Yes	Yes	0	0	Normal	0.078 [e]
Thallium	48	0	NA	0.090	0.68	0.26	0.24	0.24	No	Yes	Yes	2	0	Lognormal	0.56
Vanadium	48	0	NA	18.4	59.1	30.3	29.4	27.9	No	No	Yes	1	0	Lognormal	47.5
Zinc	52	0	NA	32.8	126	64.5	61.9	58.8	No	Yes	Yes	0	0	Lognormal	111
Mercury															
Mercury	104	25	0.020	0.0070	2.8	0.067	0.033	0.030	No	No	No	1	1	NonParametric	0.14
w/o 1 outlier	103	25	0.020	0.0070	0.15	0.040	0.032	0.030	No	No	No	NA	NA	NonParametric	0.12

Notes on following page.

Table C-2. (Continued)

Notes: [a] Includes <2 mm sieved fraction for soil samples from the Teck 2014 Upland Soil study (excludes the <149 µm fraction)

[b] Concentrations below detection limits are included at the result specific detection limit

[c] High concentration outliers determined from visual inspection of QQ-plots and formal outlier tests (Dixon or Rosner) based on log-transformed concentrations except antimony and silver (follow a normal distribution, therefore measured concentrations used) with ND results excluded

[d] Samples identified for exclusion by EPA based on multivariate analysis and location (USEPA 2020c).

[e] BTV is higher than the maximum detected concentration.

Arith. Mean	- arithmetic mean
BTV	- background threshold value (rounded to three significant figures or two significant figures if less than 10 mg/kg)
EPA	- U.S. Environmental Protection Agency
Geo. Mean	- geometric mean
Max(Det)	- maximum of detected concentrations
Min(Det)	- minimum of the detected concentrations
Min(ND)	- minimum of the specified detection limits
N	- number of samples
NA	- not applicable
ND	- number of samples with concentrations below the detection limit
w/o 4 outlier	- values calculated without four highest concentration outliers; minimum number of outliers identified by QQ-plots and tests.
WH	- Wilson-Hilferty

Attachment C-1

ProUCL Output and QQ-Plots for Total Metals Results

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, aluminum)

General Statistics

Total Number of Observations	3148	Number of Missing Observations	0
Number of Distinct Observations	1145		
Number of Detects	3110	Number of Non-Detects	38
Number of Distinct Detects	1144	Number of Distinct Non-Detects	1
Minimum Detect	256	Minimum Non-Detect	500
Maximum Detect	105500	Maximum Non-Detect	500
Variance Detected	90008842	Percent Non-Detects	1.21%
Mean Detected	59312	SD Detected	9487
Mean of Detected Logged Data	10.97	SD of Detected Logged Data	0.218

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.691	d2max (for USL)	4.155

Normal GOF Test on Detects Only

Lilliefors Test Statistic	0.0721	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.016	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	58599	KM SD	11423
95% UTL95% Coverage	77910	95% KM UPL (t)	77397
90% KM Percentile (z)	73238	95% KM Percentile (z)	77388
99% KM Percentile (z)	85173	95% KM USL	106062

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	58599	SD	11425
95% UTL95% Coverage	77914	95% UPL (t)	77400
90% Percentile (z)	73241	95% Percentile (z)	77392
99% Percentile (z)	85178	95% USL	106071

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	77.92	Anderson-Darling GOF Test	
5% A-D Critical Value	0.752	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.115	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0181	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	29.37	k star (bias corrected MLE)	29.34
Theta hat (MLE)	2019	Theta star (bias corrected MLE)	2021
nu hat (MLE)	182691	nu star (bias corrected)	182516
MLE Mean (bias corrected)	59312		
MLE Sd (bias corrected)	10949	95% Percentile of Chisquare (2kstar)	77.57

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	256	Mean	59059
Maximum	105500	Median	59404
SD	9706	CV	0.164
k hat (MLE)	28.07	k star (bias corrected MLE)	28.04
Theta hat (MLE)	2104	Theta star (bias corrected MLE)	2106
nu hat (MLE)	176738	nu star (bias corrected)	176571
MLE Mean (bias corrected)	59059	MLE Sd (bias corrected)	11152
95% Percentile of Chisquare (2kstar)	74.57	90% Percentile	73725
95% Percentile	78519	99% Percentile	88049

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	78797	79664	95% Approx. Gamma UPL	78202	79031
95% Gamma USL	116243	120632			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	58599	SD (KM)	11423
Variance (KM)	1.31E+08	SE of Mean (KM)	203.6
k hat (KM)	26.32	k star (KM)	26.29
nu hat (KM)	165686	nu star (KM)	165529
theta hat (KM)	2227	theta star (KM)	2229
80% gamma percentile (KM)	67938	90% gamma percentile (KM)	73639
95% gamma percentile (KM)	78577	99% gamma percentile (KM)	88408

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	95195	102223	95% Approx. Gamma UPL	94005	100735
95% KM Gamma Percentile	93985	100710	95% Gamma USL	176930	212411

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.151	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.016	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	59041	Mean in Log Scale	10.97
SD in Original Scale	9746	SD in Log Scale	0.222
95% UTL95% Coverage	84419	95% BCA UTL95% Coverage	73700

Background Statistics for all samples in Data Sets with Non-Detects

95% Bootstrap (%) UTL95% Coverage	73800	95% UPL (t)	83580
90% Percentile (z)	77085	95% Percentile (z)	83566
99% Percentile (z)	97230	95% USL	145975

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	10.91	95% KM UTL (Lognormal)95% Coverage	158691
KM SD of Logged Data	0.631	95% KM UPL (Lognormal)	154254
95% KM Percentile Lognormal (z)	154181	95% KM USL (Lognormal)	751551

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	58599	Mean in Log Scale	10.91
SD in Original Scale	11425	SD in Log Scale	0.634
95% UTL95% Coverage	159327	95% UPL (t)	154854
90% Percentile (z)	122957	95% Percentile (z)	154780
99% Percentile (z)	238360	95% USL	759289

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	3011	95% UTL with95% Coverage	73800
Approx, f used to compute achieved CC	1.148	Approximate Actual Confidence Coefficient achieved by UT	0.95
Approximate Sample Size needed to achieve specified CC	3147	95% UPL	73300
95% USL	105500	95% KM Chebyshev UPL	108399

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, antimony)

General Statistics			
Total Number of Observations	6	Number of Distinct Observations	6
Minimum	0.39	First Quartile	1.015
Second Largest	1.19	Median	1.095
Maximum	1.99	Third Quartile	1.183
Mean	1.128	SD	0.513
Coefficient of Variation	0.455	Skewness	0.522
Mean of logged Data	0.0181	SD of logged Data	0.531
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	3.708	d2max (for USL)	1.822
Normal GOF Test			
Shapiro Wilk Test Statistic	0.904	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.285	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	3.031	90% Percentile (z)	1.786
95% UPL (t)	2.245	95% Percentile (z)	1.972
95% USL	2.063	99% Percentile (z)	2.322
Gamma GOF Test			
A-D Test Statistic	0.485	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.296	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.333	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.031	k star (bias corrected MLE)	2.626
Theta hat (MLE)	0.224	Theta star (bias corrected MLE)	0.43
nu hat (MLE)	60.37	nu star (bias corrected)	31.52
MLE Mean (bias corrected)	1.128	MLE Sd (bias corrected)	0.696
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	2.668	90% Percentile	2.061
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.771	95% Percentile	2.462
95% WH Approx. Gamma UTL with 95% Coverage	4.461	99% Percentile	3.336
95% HW Approx. Gamma UTL with 95% Coverage	4.879		
95% WH USL	2.337	95% HW USL	2.401
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.864	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.327	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.325	Data Not Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	7.302	90% Percentile (z)	2.012
95% UPL (t)	3.236	95% Percentile (z)	2.44
95% USL	2.681	99% Percentile (z)	3.505
Nonparametric Distribution Free Background Statistics			
Data appear Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	6	95% UTL with 95% Coverage	1.99
Approx, f used to compute achieved CC	0.316	Approximate Actual Confidence Coefficient achieved by UT	0.265
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1.99	95% BCA Bootstrap UTL with 95% Coverage	1.99
95% UPL	1.99	90% Percentile	1.59
90% Chebyshev UPL	2.791	95% Percentile	1.79
95% Chebyshev UPL	3.544	99% Percentile	1.95
95% USL	1.99		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, arsenic)

General Statistics			
Total Number of Observations	701	Number of Distinct Observations	65
Minimum	0.8	First Quartile	2
Second Largest	32	Median	3
Maximum	36.6	Third Quartile	5
Mean	3.748	SD	3.506
Coefficient of Variation	0.935	Skewness	3.193
Mean of logged Data	1.013	SD of logged Data	0.764
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	1.744	d2max (for USL)	3.785
Normal GOF Test			
Shapiro Wilk Test Statistic	0.724	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.214	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0338	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	9.861	90% Percentile (z)	8.241
95% UPL (t)	9.527	95% Percentile (z)	9.515
95% USL	17.02	99% Percentile (z)	11.9
Gamma GOF Test			
A-D Test Statistic	17.88	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.165	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0363	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.769	k star (bias corrected MLE)	1.762
Theta hat (MLE)	2.119	Theta star (bias corrected MLE)	2.127
nu hat (MLE)	2480	nu star (bias corrected)	2471
MLE Mean (bias corrected)	3.748	MLE Sd (bias corrected)	2.824
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	9.097	90% Percentile	7.512
95% Hawkins Wixley (HW) Approx. Gamma UPL	9.173	95% Percentile	9.259
95% WH Approx. Gamma UTL with 95% Coverage	9.589	99% Percentile	13.16
95% HW Approx. Gamma UTL with 95% Coverage	9.706		
95% WH USL	24.78	95% HW USL	27.75
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.92	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.139	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0338	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	10.43	90% Percentile (z)	7.327
95% UPL (t)	9.695	95% Percentile (z)	9.671
95% USL	49.59	99% Percentile (z)	16.27
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	675	95% UTL with 95% Coverage	12
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by UT	0.936
		Approximate Sample Size needed to achieve specified CC	716
95% Percentile Bootstrap UTL with 95% Coverage	12	95% BCA Bootstrap UTL with 95% Coverage	11
95% UPL	11	90% Percentile	7.4
90% Chebyshev UPL	14.27	95% Percentile	11
95% Chebyshev UPL	19.04	99% Percentile	15
95% USL	36.6		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, barium)

General Statistics			
Total Number of Observations	845	Number of Distinct Observations	348
Minimum	8	First Quartile	193
Second Largest	1090	Median	285
Maximum	1520	Third Quartile	392
Mean	316	SD	182.3
Coefficient of Variation	0.577	Skewness	1.485
Mean of logged Data	5.587	SD of logged Data	0.621
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834
Normal GOF Test			
Shapiro Wilk Test Statistic	0.903	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.105	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	632.1	90% Percentile (z)	549.6
95% UPL (t)	616.3	95% Percentile (z)	615.8
95% USL	1015	99% Percentile (z)	740
Gamma GOF Test			
A-D Test Statistic	1.769	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.761	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0356	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0326	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	3.124	k star (bias corrected MLE)	3.113
Theta hat (MLE)	101.2	Theta star (bias corrected MLE)	101.5
nu hat (MLE)	5279	nu star (bias corrected)	5261
MLE Mean (bias corrected)	316	MLE Sd (bias corrected)	179.1
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	653.2	90% Percentile	556.1
95% Hawkins Wixley (HW) Approx. Gamma UPL	667.4	95% Percentile	656.1
95% WH Approx. Gamma UTL with 95% Coverage	678.6	99% Percentile	872.5
95% HW Approx. Gamma UTL with 95% Coverage	695.3		
95% WH USL	1509	95% HW USL	1679
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.961	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0644	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	783.8	90% Percentile (z)	591.7
95% UPL (t)	742.7	95% Percentile (z)	741.4
95% USL	2886	99% Percentile (z)	1132
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	812	95% UTL with 95% Coverage	722
Approx, f used to compute achieved CC	1.257	Approximate Actual Confidence Coefficient achieved by UT	0.92
		Approximate Sample Size needed to achieve specified CC	877
95% Percentile Bootstrap UTL with 95% Coverage	727.8	95% BCA Bootstrap UTL with 95% Coverage	722
95% UPL	683.4	90% Percentile	536.2
90% Chebyshev UPL	863.1	95% Percentile	679
95% Chebyshev UPL	1111	99% Percentile	893.8
95% USL	1520		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, beryllium)

General Statistics

Total Number of Observations	845	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	828	Number of Non-Detects	17
Number of Distinct Detects	17	Number of Distinct Non-Detects	2
Minimum Detect	0.5	Minimum Non-Detect	0.5
Maximum Detect	10	Maximum Non-Detect	1
Variance Detected	0.582	Percent Non-Detects	2.01%
Mean Detected	1.697	SD Detected	0.763
Mean of Detected Logged Data	0.433	SD of Detected Logged Data	0.453

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.863	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.169	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0311	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.673	KM SD	0.773
95% UTL95% Coverage	3.014	95% KM UPL (t)	2.947
90% KM Percentile (z)	2.664	95% KM Percentile (z)	2.945
99% KM Percentile (z)	3.472	95% KM USL	4.638

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.671	SD	0.777
95% UTL95% Coverage	3.018	95% UPL (t)	2.951
90% Percentile (z)	2.667	95% Percentile (z)	2.949
99% Percentile (z)	3.478	95% USL	4.649

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	21.42	Anderson-Darling GOF Test	
5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.154	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0328	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.365	k star (bias corrected MLE)	5.346
Theta hat (MLE)	0.316	Theta star (bias corrected MLE)	0.317
nu hat (MLE)	8884	nu star (bias corrected)	8853
MLE Mean (bias corrected)	1.697		
MLE Sd (bias corrected)	0.734	95% Percentile of Chisquare (2kstar)	19.26

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.253	Mean	1.673
Maximum	10	Median	1.5
SD	0.774	CV	0.463
k hat (MLE)	4.909	k star (bias corrected MLE)	4.893
Theta hat (MLE)	0.341	Theta star (bias corrected MLE)	0.342
nu hat (MLE)	8297	nu star (bias corrected)	8269
MLE Mean (bias corrected)	1.673	MLE Sd (bias corrected)	0.756
95% Percentile of Chisquare (2kstar)	18.01	90% Percentile	2.686
95% Percentile	3.079	99% Percentile	3.912

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.173	3.225	95% Approx. Gamma UPL	3.074	3.118
95% Gamma USL	6.266	6.751			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.673	SD (KM)	0.773
Variance (KM)	0.598	SE of Mean (KM)	0.0266
k hat (KM)	4.678	k star (KM)	4.662
nu hat (KM)	7905	nu star (KM)	7879
theta hat (KM)	0.358	theta star (KM)	0.359
80% gamma percentile (KM)	2.266	90% gamma percentile (KM)	2.71
95% gamma percentile (KM)	3.116	99% gamma percentile (KM)	3.977

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.166	3.215	95% Approx. Gamma UPL	3.067	3.109
95% KM Gamma Percentile	3.064	3.106	95% Gamma USL	6.239	6.711

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.91	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.184	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0311	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.675	Mean in Log Scale	0.413
SD in Original Scale	0.771	SD in Log Scale	0.47
95% UTL95% Coverage	3.415	95% BCA UTL95% Coverage	3
95% Bootstrap (%) UTL95% Coverage	3	95% UPL (t)	3.279
90% Percentile (z)	2.76	95% Percentile (z)	3.274
99% Percentile (z)	4.511	95% USL	9.163

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.41	95% KM UTL (Lognormal)95% Coverage	3.434
KM SD of Logged Data	0.475	95% KM UPL (Lognormal)	3.296
95% KM Percentile Lognormal (z)	3.291	95% KM USL (Lognormal)	9.308

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.671	Mean in Log Scale	0.405
SD in Original Scale	0.777	SD in Log Scale	0.49
95% UTL95% Coverage	3.508	95% UPL (t)	3.362
90% Percentile (z)	2.81	95% Percentile (z)	3.357
99% Percentile (z)	4.688	95% USL	9.813

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	812	95% UTL with95% Coverage	3
Approx, f used to compute achieved CC	1.257	Approximate Actual Confidence Coefficient achieved by UT	0.92
Approximate Sample Size needed to achieve specified CC	877	95% UPL	3
95% USL	10	95% KM Chebyshev UPL	5.046

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, cadmium)

General Statistics

Total Number of Observations	68	Number of Missing Observations	0
Number of Distinct Observations	6		
Number of Detects	7	Number of Non-Detects	61
Number of Distinct Detects	5	Number of Distinct Non-Detects	1
Minimum Detect	0.2	Minimum Non-Detect	2
Maximum Detect	9	Maximum Non-Detect	2
Variance Detected	10.7	Percent Non-Detects	89.71%
Mean Detected	1.586	SD Detected	3.271
Mean of Detected Logged Data	-0.621	SD of Detected Logged Data	1.277

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.991	d2max (for USL)	3.073

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.482	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.803	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.487	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.304	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.477	KM SD	1.046
95% UTL95% Coverage	2.559	95% KM UPL (t)	2.234
90% KM Percentile (z)	1.817	95% KM Percentile (z)	2.197
99% KM Percentile (z)	2.91	95% KM USL	3.691

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.06	SD	0.995
95% UTL95% Coverage	3.042	95% UPL (t)	2.732
90% Percentile (z)	2.336	95% Percentile (z)	2.697
99% Percentile (z)	3.375	95% USL	4.119

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.564	Anderson-Darling GOF Test	
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.463	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.326	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.575	k star (bias corrected MLE)	0.424
Theta hat (MLE)	2.759	Theta star (bias corrected MLE)	3.743
nu hat (MLE)	8.047	nu star (bias corrected)	5.932
MLE Mean (bias corrected)	1.586		
MLE Sd (bias corrected)	2.436	95% Percentile of Chisquare (2kstar)	3.451

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.892
Maximum	9	Median	0.248
SD	1.557	CV	1.745
k hat (MLE)	0.352	k star (bias corrected MLE)	0.347
Theta hat (MLE)	2.532	Theta star (bias corrected MLE)	2.574
nu hat (MLE)	47.91	nu star (bias corrected)	47.13
MLE Mean (bias corrected)	0.892	MLE Sd (bias corrected)	1.515
95% Percentile of Chisquare (2kstar)	3.024	90% Percentile	2.58
95% Percentile	3.892	99% Percentile	7.244

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.599	5.232	95% Approx. Gamma UPL	3.44	3.707
95% Gamma USL	10.61	14.37			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.477	SD (KM)	1.046
Variance (KM)	1.093	SE of Mean (KM)	0.143
k hat (KM)	0.208	k star (KM)	0.209
nu hat (KM)	28.33	nu star (KM)	28.41
theta hat (KM)	2.291	theta star (KM)	2.284
80% gamma percentile (KM)	0.643	90% gamma percentile (KM)	1.443
95% gamma percentile (KM)	2.431	99% gamma percentile (KM)	5.13

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.243	1.143	95% Approx. Gamma UPL	1.06	0.976
95% KM Gamma Percentile	1.04	0.958	95% Gamma USL	2.043	1.894

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.674	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.803	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.38	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.304	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.661	Mean in Log Scale	-0.946
SD in Original Scale	1.14	SD in Log Scale	0.961
95% UTL95% Coverage	2.628	95% BCA UTL95% Coverage	2.382
95% Bootstrap (%) UTL95% Coverage	2.538	95% UPL (t)	1.95
90% Percentile (z)	1.33	95% Percentile (z)	1.885
99% Percentile (z)	3.627	95% USL	7.434

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.042	95% KM UTL (Lognormal)95% Coverage	0.937
KM SD of Logged Data	0.491	95% KM UPL (Lognormal)	0.805
95% KM Percentile Lognormal (z)	0.791	95% KM USL (Lognormal)	1.594

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.06	Mean in Log Scale	-0.0639
SD in Original Scale	0.995	SD in Log Scale	0.427
95% UTL95% Coverage	2.194	95% UPL (t)	1.921
90% Percentile (z)	1.621	95% Percentile (z)	1.893
99% Percentile (z)	2.531	95% USL	3.482

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	67	95% UTL with95% Coverage	2
Approx, f used to compute achieved CC	1.763	Approximate Actual Confidence Coefficient achieved by UT	0.86
Approximate Sample Size needed to achieve specified CC	93	95% UPL	2
95% USL	9	95% KM Chebyshev UPL	5.068

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, chromium)

General Statistics			
Total Number of Observations	850	Number of Distinct Observations	91
Minimum	5	First Quartile	20
Second Largest	1250	Median	30
Maximum	1300	Third Quartile	60
Mean	54.47	SD	98.83
Coefficient of Variation	1.814	Skewness	8.708
Mean of logged Data	3.573	SD of logged Data	0.797
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.835
Normal GOF Test			
Shapiro Wilk Test Statistic	0.351	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.309	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0307	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	225.9	90% Percentile (z)	181.1
95% UPL (t)	217.3	95% Percentile (z)	217
95% USL	433.5	99% Percentile (z)	284.4
Gamma GOF Test			
A-D Test Statistic	35.2	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.776	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.165	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0329	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.318	k star (bias corrected MLE)	1.314
Theta hat (MLE)	41.33	Theta star (bias corrected MLE)	41.45
nu hat (MLE)	2241	nu star (bias corrected)	2234
MLE Mean (bias corrected)	54.47	MLE Sd (bias corrected)	47.52
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	137.9	90% Percentile	117.2
95% Hawkins Wixley (HW) Approx. Gamma UPL	134.5	95% Percentile	148.4
95% WH Approx. Gamma UTL with 95% Coverage	145.4	99% Percentile	219.3
95% HW Approx. Gamma UTL with 95% Coverage	142.2		
95% WH USL	420.1	95% HW USL	453.6
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.949	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.106	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0307	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	141.8	90% Percentile (z)	98.86
95% UPL (t)	132.3	95% Percentile (z)	132.1
95% USL	756.5	99% Percentile (z)	227.3
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	817	95% UTL with 95% Coverage	155
Approx, f used to compute achieved CC	1.265	Approximate Actual Confidence Coefficient achieved by UT	0.926
		Approximate Sample Size needed to achieve specified CC	877
95% Percentile Bootstrap UTL with 95% Coverage	155	95% BCA Bootstrap UTL with 95% Coverage	140
95% UPL	127.3	90% Percentile	97.3
90% Chebyshev UPL	351.1	95% Percentile	125
95% Chebyshev UPL	485.5	99% Percentile	397.8
95% USL	1300		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, cobalt)

General Statistics

Total Number of Observations	847	Number of Missing Observations	0
Number of Distinct Observations	34		
Number of Detects	642	Number of Non-Detects	205
Number of Distinct Detects	34	Number of Distinct Non-Detects	1
Minimum Detect	2	Minimum Non-Detect	5
Maximum Detect	73	Maximum Non-Detect	5
Variance Detected	40.37	Percent Non-Detects	24.20%
Mean Detected	9.936	SD Detected	6.354
Mean of Detected Logged Data	2.155	SD of Detected Logged Data	0.502

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.75	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.216	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0353	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	8.257	KM SD	6.294
95% UTL95% Coverage	19.17	95% KM UPL (t)	18.63
90% KM Percentile (z)	16.32	95% KM Percentile (z)	18.61
99% KM Percentile (z)	22.9	95% KM USL	32.39

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	8.136	SD	6.383
95% UTL95% Coverage	19.21	95% UPL (t)	18.65
90% Percentile (z)	16.32	95% Percentile (z)	18.64
99% Percentile (z)	22.99	95% USL	32.61

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	22.68	Anderson-Darling GOF Test	
5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.162	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0373	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics on Detected Data Only

k hat (MLE)	3.694	k star (bias corrected MLE)	3.677
Theta hat (MLE)	2.69	Theta star (bias corrected MLE)	2.702
nu hat (MLE)	4742	nu star (bias corrected)	4722
MLE Mean (bias corrected)	9.936		
MLE Sd (bias corrected)	5.181	95% Percentile of Chisquare (2kstar)	14.58

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	7.703
Maximum	73	Median	7
SD	6.81	CV	0.884
k hat (MLE)	0.672	k star (bias corrected MLE)	0.671
Theta hat (MLE)	11.45	Theta star (bias corrected MLE)	11.48
nu hat (MLE)	1139	nu star (bias corrected)	1136
MLE Mean (bias corrected)	7.703	MLE Sd (bias corrected)	9.405
95% Percentile of Chisquare (2kstar)	4.638	90% Percentile	19.53
95% Percentile	26.62	99% Percentile	43.62

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	26.68	31.72	95% Approx. Gamma UPL	25.04	29.4
95% Gamma USL	91.12	142.3			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	8.257	SD (KM)	6.294
Variance (KM)	39.62	SE of Mean (KM)	0.277
k hat (KM)	1.721	k star (KM)	1.716
nu hat (KM)	2915	nu star (KM)	2906
theta hat (KM)	4.798	theta star (KM)	4.813
80% gamma percentile (KM)	12.58	90% gamma percentile (KM)	16.66
95% gamma percentile (KM)	20.58	99% gamma percentile (KM)	29.35

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	19.23	19.5	95% Approx. Gamma UPL	18.42	18.63
95% KM Gamma Percentile	18.4	18.61	95% Gamma USL	46.49	51.5

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.906	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.155	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0353	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	8.23	Mean in Log Scale	1.879
SD in Original Scale	6.314	SD in Log Scale	0.675
95% UTL95% Coverage	21.09	95% BCA UTL95% Coverage	19
95% Bootstrap (%) UTL95% Coverage	22	95% UPL (t)	19.89
90% Percentile (z)	15.54	95% Percentile (z)	19.86
99% Percentile (z)	31.45	95% USL	87.01

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.885	95% KM UTL (Lognormal)95% Coverage	21.03
KM SD of Logged Data	0.669	95% KM UPL (Lognormal)	19.84
95% KM Percentile Lognormal (z)	19.81	95% KM USL (Lognormal)	85.79

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	8.136	Mean in Log Scale	1.855
SD in Original Scale	6.383	SD in Log Scale	0.688
95% UTL95% Coverage	21.07	95% UPL (t)	19.85
90% Percentile (z)	15.43	95% Percentile (z)	19.81
99% Percentile (z)	31.66	95% USL	89.3

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	814	95% UTL with95% Coverage	22
Approx, f used to compute achieved CC	1.26	Approximate Actual Confidence Coefficient achieved by UT	0.922
Approximate Sample Size needed to achieve specified CC	877	95% UPL	20
95% USL	73	95% KM Chebyshev UPL	35.71

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, copper)

General Statistics

Total Number of Observations	804	Number of Missing Observations	0
Number of Distinct Observations	65		
Number of Detects	803	Number of Non-Detects	1
Number of Distinct Detects	65	Number of Distinct Non-Detects	1
Minimum Detect	1	Minimum Non-Detect	2
Maximum Detect	106	Maximum Non-Detect	2
Variance Detected	129.2	Percent Non-Detects	0.12%
Mean Detected	14.59	SD Detected	11.37
Mean of Detected Logged Data	2.454	SD of Detected Logged Data	0.681

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.737	d2max (for USL)	3.821

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.749	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.161	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0316	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	14.57	KM SD	11.36
95% UTL95% Coverage	34.31	95% KM UPL (t)	33.3
90% KM Percentile (z)	29.13	95% KM Percentile (z)	33.26
99% KM Percentile (z)	41.01	95% KM USL	57.99

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	14.57	SD	11.37
95% UTL95% Coverage	34.32	95% UPL (t)	33.31
90% Percentile (z)	29.14	95% Percentile (z)	33.27
99% Percentile (z)	41.02	95% USL	58.02

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.132	Anderson-Darling GOF Test	
5% A-D Critical Value	0.765	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0719	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0337	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.367	k star (bias corrected MLE)	2.359
Theta hat (MLE)	6.164	Theta star (bias corrected MLE)	6.185
nu hat (MLE)	3801	nu star (bias corrected)	3788
MLE Mean (bias corrected)	14.59		
MLE Sd (bias corrected)	9.499	95% Percentile of Chisquare (2kstar)	10.63

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	14.57
Maximum	106	Median	12
SD	11.37	CV	0.78
k hat (MLE)	2.295	k star (bias corrected MLE)	2.287
Theta hat (MLE)	6.349	Theta star (bias corrected MLE)	6.37
nu hat (MLE)	3690	nu star (bias corrected)	3678
MLE Mean (bias corrected)	14.57	MLE Sd (bias corrected)	9.635
95% Percentile of Chisquare (2kstar)	10.41	90% Percentile	27.47
95% Percentile	33.15	99% Percentile	45.64

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	34.13	34.84	95% Approx. Gamma UPL	32.66	33.23
95% Gamma USL	82.31	92.24			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	14.57	SD (KM)	11.36
Variance (KM)	129.1	SE of Mean (KM)	0.401
k hat (KM)	1.645	k star (KM)	1.639
nu hat (KM)	2645	nu star (KM)	2636
theta hat (KM)	8.86	theta star (KM)	8.888
80% gamma percentile (KM)	22.32	90% gamma percentile (KM)	29.72
95% gamma percentile (KM)	36.86	99% gamma percentile (KM)	52.88

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	33.97	34.55	95% Approx. Gamma UPL	32.51	32.97
95% KM Gamma Percentile	32.46	32.92	95% Gamma USL	81.61	90.79

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.977	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	1.97E-04	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.068	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0316	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	14.57	Mean in Log Scale	2.452
SD in Original Scale	11.37	SD in Log Scale	0.683
95% UTL95% Coverage	38.05	95% BCA UTL95% Coverage	37
95% Bootstrap (%) UTL95% Coverage	37	95% UPL (t)	35.81
90% Percentile (z)	27.88	95% Percentile (z)	35.74
99% Percentile (z)	56.93	95% USL	158.1

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.451	95% KM UTL (Lognormal)95% Coverage	38.16
KM SD of Logged Data	0.685	95% KM UPL (Lognormal)	35.9
95% KM Percentile Lognormal (z)	35.83	95% KM USL (Lognormal)	159.2

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	14.57	Mean in Log Scale	2.451
SD in Original Scale	11.37	SD in Log Scale	0.686
95% UTL95% Coverage	38.18	95% UPL (t)	35.92
90% Percentile (z)	27.94	95% Percentile (z)	35.85
99% Percentile (z)	57.21	95% USL	159.5

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	773	95% UTL with95% Coverage	37
Approx, f used to compute achieved CC	1.271	Approximate Actual Confidence Coefficient achieved by UT	0.924
Approximate Sample Size needed to achieve specified CC	831	95% UPL	35
95% USL	106	95% KM Chebyshev UPL	64.13

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, iron)

General Statistics

Total Number of Observations	3099	Number of Missing Observations	0
Number of Distinct Observations	1126		
Number of Detects	3094	Number of Non-Detects	5
Number of Distinct Detects	1124	Number of Distinct Non-Detects	2
Minimum Detect	2000	Minimum Non-Detect	5000
Maximum Detect	109700	Maximum Non-Detect	6284
Variance Detected	1.19E+08	Percent Non-Detects	0.16%
Mean Detected	32047	SD Detected	10897
Mean of Detected Logged Data	10.32	SD of Detected Logged Data	0.331

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.691	d2max (for USL)	4.151

Normal GOF Test on Detects Only

Lilliefors Test Statistic	0.0852	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0161	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	32001	KM SD	10948
95% UTL95% Coverage	50512	95% KM UPL (t)	50016
90% KM Percentile (z)	46031	95% KM Percentile (z)	50008
99% KM Percentile (z)	57469	95% KM USL	77448

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	32000	SD	10952
95% UTL95% Coverage	50518	95% UPL (t)	50022
90% Percentile (z)	46035	95% Percentile (z)	50014
99% Percentile (z)	57478	95% USL	77465

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	14.17	Anderson-Darling GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.044	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0182	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	9.537	k star (bias corrected MLE)	9.528
Theta hat (MLE)	3360	Theta star (bias corrected MLE)	3363
nu hat (MLE)	59015	nu star (bias corrected)	58959
MLE Mean (bias corrected)	32047		
MLE Sd (bias corrected)	10382	95% Percentile of Chisquare (2kstar)	30.21

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2000	Mean	32010
Maximum	109700	Median	30300
SD	10928	CV	0.341
k hat (MLE)	9.391	k star (bias corrected MLE)	9.382
Theta hat (MLE)	3408	Theta star (bias corrected MLE)	3412
nu hat (MLE)	58207	nu star (bias corrected)	58152
MLE Mean (bias corrected)	32010	MLE Sd (bias corrected)	10450
95% Percentile of Chisquare (2kstar)	29.84	90% Percentile	45919
95% Percentile	50910	99% Percentile	61182

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	51472	51811	95% Approx. Gamma UPL	50827	51135
95% Gamma USL	95277	99773			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	32001	SD (KM)	10948
Variance (KM)	1.20E+08	SE of Mean (KM)	196.7
k hat (KM)	8.545	k star (KM)	8.537
nu hat (KM)	52960	nu star (KM)	52910
theta hat (KM)	3745	theta star (KM)	3749
80% gamma percentile (KM)	40670	90% gamma percentile (KM)	46593
95% gamma percentile (KM)	51884	99% gamma percentile (KM)	62811

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	51700	52114	95% Approx. Gamma UPL	51046	51426
95% KM Gamma Percentile	51035	51415	95% Gamma USL	96213	101111

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0423	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0161	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	32014	Mean in Log Scale	10.32
SD in Original Scale	10919	SD in Log Scale	0.333
95% UTL95% Coverage	53253	95% BCA UTL95% Coverage	52502

Background Statistics for all samples in Data Sets with Non-Detects

95% Bootstrap (%) UTL95% Coverage	52502	95% UPL (t)	52456
90% Percentile (z)	46470	95% Percentile (z)	52443
99% Percentile (z)	65795	95% USL	120778

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	10.32	95% KM UTL (Lognormal)95% Coverage	54087
KM SD of Logged Data	0.343	95% KM UPL (Lognormal)	53252
95% KM Percentile Lognormal (z)	53238	95% KM USL (Lognormal)	125858

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	32000	Mean in Log Scale	10.32
SD in Original Scale	10952	SD in Log Scale	0.345
95% UTL95% Coverage	54218	95% UPL (t)	53377
90% Percentile (z)	47080	95% Percentile (z)	53363
99% Percentile (z)	67500	95% USL	126656

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	2964	95% UTL with95% Coverage	52480
Approx, f used to compute achieved CC	1.147	Approximate Actual Confidence Coefficient achieved by UT	0.948
Approximate Sample Size needed to achieve specified CC	3104	95% UPL	51200
95% USL	109700	95% KM Chebyshev UPL	79728

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, lead)

General Statistics

Total Number of Observations	845	Number of Missing Observations	0
Number of Distinct Observations	41		
Number of Detects	667	Number of Non-Detects	178
Number of Distinct Detects	41	Number of Distinct Non-Detects	1
Minimum Detect	7	Minimum Non-Detect	10
Maximum Detect	230	Maximum Non-Detect	10
Variance Detected	127.1	Percent Non-Detects	21.07%
Mean Detected	16.88	SD Detected	11.28
Mean of Detected Logged Data	2.727	SD of Detected Logged Data	0.407

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.524	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.269	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0346	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	14.8	KM SD	10.79
95% UTL95% Coverage	33.52	95% KM UPL (t)	32.58
90% KM Percentile (z)	28.63	95% KM Percentile (z)	32.55
99% KM Percentile (z)	39.9	95% KM USL	56.17

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	14.38	SD	11.13
95% UTL95% Coverage	33.68	95% UPL (t)	32.71
90% Percentile (z)	28.64	95% Percentile (z)	32.68
99% Percentile (z)	40.27	95% USL	57.04

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.50E+28	Anderson-Darling GOF Test	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.193	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0366	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics on Detected Data Only

k hat (MLE)	5.218	k star (bias corrected MLE)	5.195
Theta hat (MLE)	3.235	Theta star (bias corrected MLE)	3.249
nu hat (MLE)	6960	nu star (bias corrected)	6930
MLE Mean (bias corrected)	16.88		
MLE Sd (bias corrected)	7.406	95% Percentile of Chisquare (2kstar)	18.84

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	13.84
Maximum	230	Median	15
SD	11.66	CV	0.843
k hat (MLE)	1.064	k star (bias corrected MLE)	1.061
Theta hat (MLE)	13	Theta star (bias corrected MLE)	13.04
nu hat (MLE)	1799	nu star (bias corrected)	1794
MLE Mean (bias corrected)	13.84	MLE Sd (bias corrected)	13.43
95% Percentile of Chisquare (2kstar)	6.227	90% Percentile	31.39
95% Percentile	40.59	99% Percentile	61.84

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	40.26	46.14	95% Approx. Gamma UPL	38.17	43.33
95% Gamma USL	117	166			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	14.8	SD (KM)	10.79
Variance (KM)	116.4	SE of Mean (KM)	0.372
k hat (KM)	1.881	k star (KM)	1.875
nu hat (KM)	3179	nu star (KM)	3169
theta hat (KM)	7.868	theta star (KM)	7.893
80% gamma percentile (KM)	22.33	90% gamma percentile (KM)	29.23
95% gamma percentile (KM)	35.83	99% gamma percentile (KM)	50.55

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	29.48	29.47	95% Approx. Gamma UPL	28.48	28.43
95% KM Gamma Percentile	28.45	28.4	95% Gamma USL	61.47	64.69

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.869	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.209	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0346	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	14.67	Mean in Log Scale	2.538
SD in Original Scale	10.91	SD in Log Scale	0.526
95% UTL95% Coverage	31.52	95% BCA UTL95% Coverage	30
95% Bootstrap (%) UTL95% Coverage	30	95% UPL (t)	30.11
90% Percentile (z)	24.84	95% Percentile (z)	30.07
99% Percentile (z)	43.04	95% USL	95.14

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.563	95% KM UTL (Lognormal)95% Coverage	29.9
KM SD of Logged Data	0.481	95% KM UPL (Lognormal)	28.67
95% KM Percentile Lognormal (z)	28.64	95% KM USL (Lognormal)	82.15

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	14.38	Mean in Log Scale	2.492
SD in Original Scale	11.13	SD in Log Scale	0.582
95% UTL95% Coverage	33.14	95% UPL (t)	31.51
90% Percentile (z)	25.47	95% Percentile (z)	31.46
99% Percentile (z)	46.77	95% USL	112.4

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	812	95% UTL with95% Coverage	30
Approx, f used to compute achieved CC	1.257	Approximate Actual Confidence Coefficient achieved by UT	0.92
Approximate Sample Size needed to achieve specified CC	877	95% UPL	30
95% USL	230	95% KM Chebyshev UPL	61.87

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, manganese)

General Statistics

Total Number of Observations	3142	Number of Missing Observations	0
Number of Distinct Observations	673		
Number of Detects	3112	Number of Non-Detects	30
Number of Distinct Detects	672	Number of Distinct Non-Detects	1
Minimum Detect	40	Minimum Non-Detect	20
Maximum Detect	9490	Maximum Non-Detect	20
Variance Detected	142676	Percent Non-Detects	0.96%
Mean Detected	766.3	SD Detected	377.7
Mean of Detected Logged Data	6.557	SD of Detected Logged Data	0.404

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.691	d2max (for USL)	4.155

Normal GOF Test on Detects Only

Lilliefors Test Statistic	0.122	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.016	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	759.2	KM SD	382.8
95% UTL95% Coverage	1406	95% KM UPL (t)	1389
90% KM Percentile (z)	1250	95% KM Percentile (z)	1389
99% KM Percentile (z)	1650	95% KM USL	2350

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	759.1	SD	383
95% UTL95% Coverage	1407	95% UPL (t)	1389
90% Percentile (z)	1250	95% Percentile (z)	1389
99% Percentile (z)	1650	95% USL	2350

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.21E+27	Anderson-Darling GOF Test	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0553	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0182	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	6.091	k star (bias corrected MLE)	6.085
Theta hat (MLE)	125.8	Theta star (bias corrected MLE)	125.9
nu hat (MLE)	37908	nu star (bias corrected)	37873
MLE Mean (bias corrected)	766.3		
MLE Sd (bias corrected)	310.6	95% Percentile of Chisquare (2kstar)	21.25

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	38.56	Mean	760.1
Maximum	9490	Median	700
SD	381.1	CV	0.501
k hat (MLE)	5.511	k star (bias corrected MLE)	5.506
Theta hat (MLE)	137.9	Theta star (bias corrected MLE)	138.1
nu hat (MLE)	34630	nu star (bias corrected)	34598
MLE Mean (bias corrected)	760.1	MLE Sd (bias corrected)	324
95% Percentile of Chisquare (2kstar)	19.69	90% Percentile	1194
95% Percentile	1359	99% Percentile	1708

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1373	1386	95% Approx. Gamma UPL	1352	1363
95% Gamma USL	2916	3119			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	759.2	SD (KM)	382.8
Variance (KM)	146536	SE of Mean (KM)	6.83
k hat (KM)	3.933	k star (KM)	3.93
nu hat (KM)	24716	nu star (KM)	24693
theta hat (KM)	193	theta star (KM)	193.2
80% gamma percentile (KM)	1049	90% gamma percentile (KM)	1273
95% gamma percentile (KM)	1479	99% gamma percentile (KM)	1919

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1416	1449	95% Approx. Gamma UPL	1393	1423
95% KM Gamma Percentile	1392	1423	95% Gamma USL	3110	3437

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0312	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.016	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	761.2	Mean in Log Scale	6.547
SD in Original Scale	379.5	SD in Log Scale	0.417
95% UTL95% Coverage	1409	95% BCA UTL95% Coverage	1370

Background Statistics for all samples in Data Sets with Non-Detects

95% Bootstrap (%) UTL95% Coverage	1380	95% UPL (t)	1383
90% Percentile (z)	1189	95% Percentile (z)	1383
99% Percentile (z)	1837	95% USL	3934

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	6.523	95% KM UTL (Lognormal)95% Coverage	1670
KM SD of Logged Data	0.531	95% KM UPL (Lognormal)	1631
95% KM Percentile Lognormal (z)	1630	95% KM USL (Lognormal)	6176

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	759.1	Mean in Log Scale	6.517
SD in Original Scale	383	SD in Log Scale	0.577
95% UTL95% Coverage	1794	95% UPL (t)	1748
90% Percentile (z)	1417	95% Percentile (z)	1747
99% Percentile (z)	2589	95% USL	7438

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	3005	95% UTL with95% Coverage	1380
Approx, f used to compute achieved CC	1.146	Approximate Actual Confidence Coefficient achieved by UT	0.948
Approximate Sample Size needed to achieve specified CC	3147	95% UPL	1345
95% USL	9490	95% KM Chebyshev UPL	2428

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, molybdenum)

General Statistics

Total Number of Observations	850	Number of Missing Observations	0
Number of Distinct Observations	25		
Number of Detects	313	Number of Non-Detects	537
Number of Distinct Detects	25	Number of Distinct Non-Detects	1
Minimum Detect	0.79	Minimum Non-Detect	2
Maximum Detect	29	Maximum Non-Detect	2
Variance Detected	11.52	Percent Non-Detects	63.18%
Mean Detected	3.75	SD Detected	3.394
Mean of Detected Logged Data	1.118	SD of Detected Logged Data	0.562

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.835

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.573	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.284	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0505	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2.039	KM SD	2.44
95% UTL95% Coverage	6.27	95% KM UPL (t)	6.059
90% KM Percentile (z)	5.166	95% KM Percentile (z)	6.052
99% KM Percentile (z)	7.715	95% KM USL	11.4

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2.013	SD	2.448
95% UTL95% Coverage	6.258	95% UPL (t)	6.046
90% Percentile (z)	5.15	95% Percentile (z)	6.04
99% Percentile (z)	7.708	95% USL	11.4

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	24.31	Anderson-Darling GOF Test	
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.238	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0517	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.614	k star (bias corrected MLE)	2.591
Theta hat (MLE)	1.434	Theta star (bias corrected MLE)	1.447
nu hat (MLE)	1637	nu star (bias corrected)	1622
MLE Mean (bias corrected)	3.75		
MLE Sd (bias corrected)	2.329	95% Percentile of Chisquare (2kstar)	11.35

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.404
Maximum	29	Median	0.01
SD	2.73	CV	1.944
k hat (MLE)	0.265	k star (bias corrected MLE)	0.265
Theta hat (MLE)	5.295	Theta star (bias corrected MLE)	5.298
nu hat (MLE)	450.7	nu star (bias corrected)	450.4
MLE Mean (bias corrected)	1.404	MLE Sd (bias corrected)	2.727
95% Percentile of Chisquare (2kstar)	2.521	90% Percentile	4.195
95% Percentile	6.677	99% Percentile	13.23

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5.82	6.275	95% Approx. Gamma UPL	5.307	5.616
95% Gamma USL	30.48	48.16			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.039	SD (KM)	2.44
Variance (KM)	5.952	SE of Mean (KM)	0.0948
k hat (KM)	0.698	k star (KM)	0.697
nu hat (KM)	1187	nu star (KM)	1185
theta hat (KM)	2.919	theta star (KM)	2.926
80% gamma percentile (KM)	3.352	90% gamma percentile (KM)	5.124
95% gamma percentile (KM)	6.952	99% gamma percentile (KM)	11.32

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.95	4.858	95% Approx. Gamma UPL	4.727	4.629
95% KM Gamma Percentile	4.72	4.622	95% Gamma USL	12.74	13.47

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.836	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.229	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0505	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.888	Mean in Log Scale	0.167
SD in Original Scale	2.523	SD in Log Scale	0.946
95% UTL95% Coverage	6.092	95% BCA UTL95% Coverage	4
95% Bootstrap (%) UTL95% Coverage	6	95% UPL (t)	5.613
90% Percentile (z)	3.971	95% Percentile (z)	5.599
99% Percentile (z)	10.66	95% USL	44.43

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.429	95% KM UTL (Lognormal)95% Coverage	4.673
KM SD of Logged Data	0.642	95% KM UPL (Lognormal)	4.42
95% KM Percentile Lognormal (z)	4.412	95% KM USL (Lognormal)	18

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2.013	Mean in Log Scale	0.412
SD in Original Scale	2.448	SD in Log Scale	0.638
95% UTL95% Coverage	4.567	95% UPL (t)	4.322
90% Percentile (z)	3.421	95% Percentile (z)	4.314
99% Percentile (z)	6.665	95% USL	17.46

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	817	95% UTL with95% Coverage	6
Approx, f used to compute achieved CC	1.265	Approximate Actual Confidence Coefficient achieved by UT	0.926
Approximate Sample Size needed to achieve specified CC	877	95% UPL	5
95% USL	29	95% KM Chebyshev UPL	12.68

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, nickel)

General Statistics

Total Number of Observations	846	Number of Missing Observations	0
Number of Distinct Observations	66		
Number of Detects	753	Number of Non-Detects	93
Number of Distinct Detects	65	Number of Distinct Non-Detects	2
Minimum Detect	5	Minimum Non-Detect	3
Maximum Detect	450	Maximum Non-Detect	5
Variance Detected	776.2	Percent Non-Detects	10.99%
Mean Detected	18.12	SD Detected	27.86
Mean of Detected Logged Data	2.594	SD of Detected Logged Data	0.671

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.358	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.319	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0326	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	16.46	KM SD	26.69
95% UTL95% Coverage	62.75	95% KM UPL (t)	60.43
90% KM Percentile (z)	50.66	95% KM Percentile (z)	60.36
99% KM Percentile (z)	78.54	95% KM USL	118.8

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	16.4	SD	26.73
95% UTL95% Coverage	62.77	95% UPL (t)	60.45
90% Percentile (z)	50.66	95% Percentile (z)	60.37
99% Percentile (z)	78.59	95% USL	118.9

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.33E+28	Anderson-Darling GOF Test	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.151	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.035	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.799	k star (bias corrected MLE)	1.793
Theta hat (MLE)	10.07	Theta star (bias corrected MLE)	10.11
nu hat (MLE)	2709	nu star (bias corrected)	2700
MLE Mean (bias corrected)	18.12		
MLE Sd (bias corrected)	13.53	95% Percentile of Chisquare (2kstar)	8.807

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	16.13
Maximum	450	Median	12
SD	26.89	CV	1.667
k hat (MLE)	0.628	k star (bias corrected MLE)	0.626
Theta hat (MLE)	25.7	Theta star (bias corrected MLE)	25.76
nu hat (MLE)	1062	nu star (bias corrected)	1059
MLE Mean (bias corrected)	16.13	MLE Sd (bias corrected)	20.38
95% Percentile of Chisquare (2kstar)	4.438	90% Percentile	41.54
95% Percentile	57.15	99% Percentile	94.75

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	54.27	63.63	95% Approx. Gamma UPL	50.92	58.98
95% Gamma USL	186.4	285.2			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	16.46	SD (KM)	26.69
Variance (KM)	712.3	SE of Mean (KM)	0.918
k hat (KM)	0.38	k star (KM)	0.38
nu hat (KM)	643.4	nu star (KM)	642.4
theta hat (KM)	43.28	theta star (KM)	43.35
80% gamma percentile (KM)	26.39	90% gamma percentile (KM)	46.91
95% gamma percentile (KM)	69.62	99% gamma percentile (KM)	127

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	42.82	42.51	95% Approx. Gamma UPL	40.71	40.29
95% KM Gamma Percentile	40.65	40.22	95% Gamma USL	118.7	130.2

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.93	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0872	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0326	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	16.46	Mean in Log Scale	2.427
SD in Original Scale	26.7	SD in Log Scale	0.798
95% UTL95% Coverage	45.23	95% BCA UTL95% Coverage	43.75
95% Bootstrap (%) UTL95% Coverage	46	95% UPL (t)	42.21
90% Percentile (z)	31.51	95% Percentile (z)	42.11
99% Percentile (z)	72.56	95% USL	241.9

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.43	95% KM UTL (Lognormal)95% Coverage	44.44
KM SD of Logged Data	0.787	95% KM UPL (Lognormal)	41.51
95% KM Percentile Lognormal (z)	41.42	95% KM USL (Lognormal)	231.9

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	16.4	Mean in Log Scale	2.409
SD in Original Scale	26.73	SD in Log Scale	0.824
95% UTL95% Coverage	46.42	95% UPL (t)	43.22
90% Percentile (z)	31.96	95% Percentile (z)	43.12
99% Percentile (z)	75.59	95% USL	261.7

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	813	95% UTL with95% Coverage	46
Approx, f used to compute achieved CC	1.259	Approximate Actual Confidence Coefficient achieved by UT	0.921
Approximate Sample Size needed to achieve specified CC	877	95% UPL	40
95% USL	450	95% KM Chebyshev UPL	132.9

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, selenium)

General Statistics

Total Number of Observations	853	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	264	Number of Non-Detects	589
Number of Distinct Detects	18	Number of Distinct Non-Detects	2
Minimum Detect	0.2	Minimum Non-Detect	0.2
Maximum Detect	8	Maximum Non-Detect	1
Variance Detected	1.631	Percent Non-Detects	69.05%
Mean Detected	1.747	SD Detected	1.277
Mean of Detected Logged Data	0.331	SD of Detected Logged Data	0.687

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.836

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.776	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.259	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0549	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.749	KM SD	0.984
95% UTL95% Coverage	2.456	95% KM UPL (t)	2.371
90% KM Percentile (z)	2.01	95% KM Percentile (z)	2.368
99% KM Percentile (z)	3.038	95% KM USL	4.524

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.87	SD	0.924
95% UTL95% Coverage	2.473	95% UPL (t)	2.393
90% Percentile (z)	2.055	95% Percentile (z)	2.39
99% Percentile (z)	3.02	95% USL	4.416

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	11.99	Anderson-Darling GOF Test	
5% A-D Critical Value	0.764	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.249	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0569	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.354	k star (bias corrected MLE)	2.33
Theta hat (MLE)	0.742	Theta star (bias corrected MLE)	0.75
nu hat (MLE)	1243	nu star (bias corrected)	1230
MLE Mean (bias corrected)	1.747		
MLE Sd (bias corrected)	1.144	95% Percentile of Chisquare (2kstar)	10.54

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.6
Maximum	8	Median	0.01
SD	1.055	CV	1.76
k hat (MLE)	0.33	k star (bias corrected MLE)	0.33
Theta hat (MLE)	1.817	Theta star (bias corrected MLE)	1.819
nu hat (MLE)	563	nu star (bias corrected)	562.3
MLE Mean (bias corrected)	0.6	MLE Sd (bias corrected)	1.044
95% Percentile of Chisquare (2kstar)	2.925	90% Percentile	1.747
95% Percentile	2.66	99% Percentile	5.006

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.417	2.574	95% Approx. Gamma UPL	2.216	2.323
95% Gamma USL	11.76	17.51			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.749	SD (KM)	0.984
Variance (KM)	0.968	SE of Mean (KM)	0.0369
k hat (KM)	0.58	k star (KM)	0.578
nu hat (KM)	988.9	nu star (KM)	986.8
theta hat (KM)	1.293	theta star (KM)	1.295
80% gamma percentile (KM)	1.235	90% gamma percentile (KM)	1.965
95% gamma percentile (KM)	2.732	99% gamma percentile (KM)	4.593

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.18	2.174	95% Approx. Gamma UPL	2.059	2.045
95% KM Gamma Percentile	2.056	2.04	95% Gamma USL	6.768	7.696

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.903	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.223	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0549	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.747	Mean in Log Scale	-0.92
SD in Original Scale	0.99	SD in Log Scale	1.143
95% UTL95% Coverage	2.891	95% BCA UTL95% Coverage	3
95% Bootstrap (%) UTL95% Coverage	3	95% UPL (t)	2.619
90% Percentile (z)	1.724	95% Percentile (z)	2.611
99% Percentile (z)	5.689	95% USL	31.96

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.801	95% KM UTL (Lognormal)95% Coverage	2.22
KM SD of Logged Data	0.922	95% KM UPL (Lognormal)	2.05
95% KM Percentile Lognormal (z)	2.045	95% KM USL (Lognormal)	15.41

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.87	Mean in Log Scale	-0.439
SD in Original Scale	0.924	SD in Log Scale	0.711
95% UTL95% Coverage	2.214	95% UPL (t)	2.082
90% Percentile (z)	1.605	95% Percentile (z)	2.078
99% Percentile (z)	3.374	95% USL	9.875

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	820	95% UTL with95% Coverage	3
Approx, f used to compute achieved CC	1.269	Approximate Actual Confidence Coefficient achieved by UT	0.929
Approximate Sample Size needed to achieve specified CC	877	95% UPL	3
95% USL	8	95% KM Chebyshev UPL	5.041

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, silver)

General Statistics

Total Number of Observations	827	Number of Missing Observations	0
Number of Distinct Observations	29		
Number of Detects	802	Number of Non-Detects	25
Number of Distinct Detects	29	Number of Distinct Non-Detects	2
Minimum Detect	0.1	Minimum Non-Detect	0.1
Maximum Detect	19.3	Maximum Non-Detect	1
Variance Detected	0.736	Percent Non-Detects	3.02%
Mean Detected	0.497	SD Detected	0.858
Mean of Detected Logged Data	-0.991	SD of Detected Logged Data	0.68

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.735	d2max (for USL)	3.828

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.29	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.322	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0316	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.487	KM SD	0.846
95% UTL95% Coverage	1.956	95% KM UPL (t)	1.882
90% KM Percentile (z)	1.572	95% KM Percentile (z)	1.88
99% KM Percentile (z)	2.456	95% KM USL	3.728

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.487	SD	0.847
95% UTL95% Coverage	1.957	95% UPL (t)	1.883
90% Percentile (z)	1.573	95% Percentile (z)	1.881
99% Percentile (z)	2.458	95% USL	3.731

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.25E+28	Anderson-Darling GOF Test	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.155	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0338	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.859	k star (bias corrected MLE)	1.852
Theta hat (MLE)	0.268	Theta star (bias corrected MLE)	0.268
nu hat (MLE)	2981	nu star (bias corrected)	2971
MLE Mean (bias corrected)	0.497		
MLE Sd (bias corrected)	0.365	95% Percentile of Chisquare (2kstar)	9.005

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.485
Maximum	19.3	Median	0.4
SD	0.848	CV	1.748
k hat (MLE)	1.552	k star (bias corrected MLE)	1.547
Theta hat (MLE)	0.313	Theta star (bias corrected MLE)	0.314
nu hat (MLE)	2567	nu star (bias corrected)	2559
MLE Mean (bias corrected)	0.485	MLE Sd (bias corrected)	0.39
95% Percentile of Chisquare (2kstar)	7.977	90% Percentile	1.003
95% Percentile	1.251	99% Percentile	1.809

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.24	1.255	95% Approx. Gamma UPL	1.18	1.19
95% Gamma USL	3.342	3.771			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.487	SD (KM)	0.846
Variance (KM)	0.717	SE of Mean (KM)	0.0295
k hat (KM)	0.331	k star (KM)	0.331
nu hat (KM)	548.1	nu star (KM)	547.5
theta hat (KM)	1.47	theta star (KM)	1.472
80% gamma percentile (KM)	0.764	90% gamma percentile (KM)	1.419
95% gamma percentile (KM)	2.159	99% gamma percentile (KM)	4.059

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.187	1.173	95% Approx. Gamma UPL	1.132	1.116
95% KM Gamma Percentile	1.131	1.114	95% Gamma USL	3.071	3.292

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.936	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.15	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0316	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.487	Mean in Log Scale	-1.031
SD in Original Scale	0.847	SD in Log Scale	0.718
95% UTL95% Coverage	1.24	95% BCA UTL95% Coverage	1.07
95% Bootstrap (%) UTL95% Coverage	1.1	95% UPL (t)	1.165
90% Percentile (z)	0.895	95% Percentile (z)	1.162
99% Percentile (z)	1.896	95% USL	5.573

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.022	95% KM UTL (Lognormal)95% Coverage	1.212
KM SD of Logged Data	0.7	95% KM UPL (Lognormal)	1.14
95% KM Percentile Lognormal (z)	1.137	95% KM USL (Lognormal)	5.241

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.487	Mean in Log Scale	-1.035
SD in Original Scale	0.847	SD in Log Scale	0.735
95% UTL95% Coverage	1.272	95% UPL (t)	1.192
90% Percentile (z)	0.911	95% Percentile (z)	1.19
99% Percentile (z)	1.963	95% USL	5.92

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	795	95% UTL with95% Coverage	1.1
Approx, f used to compute achieved CC	1.268	Approximate Actual Confidence Coefficient achieved by UT	0.925
Approximate Sample Size needed to achieve specified CC	854	95% UPL	1
95% USL	19.3	95% KM Chebyshev UPL	4.179

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, thallium)

General Statistics			
Total Number of Observations	6	Number of Distinct Observations	4
Minimum	0.3	First Quartile	0.35
Second Largest	0.6	Median	0.5
Maximum	0.7	Third Quartile	0.575
Mean	0.483	SD	0.16
Coefficient of Variation	0.331	Skewness	-0.0405
Mean of logged Data	-0.777	SD of logged Data	0.354
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	3.708	d2max (for USL)	1.822
Normal GOF Test			
Shapiro Wilk Test Statistic	0.908	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.208	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	1.077	90% Percentile (z)	0.689
95% UPL (t)	0.832	95% Percentile (z)	0.747
95% USL	0.775	99% Percentile (z)	0.856
Gamma GOF Test			
A-D Test Statistic	0.437	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.251	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	10.18	k star (bias corrected MLE)	5.202
Theta hat (MLE)	0.0475	Theta star (bias corrected MLE)	0.0929
nu hat (MLE)	122.2	nu star (bias corrected)	62.43
MLE Mean (bias corrected)	0.483	MLE Sd (bias corrected)	0.212
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	0.918	90% Percentile	0.767
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.934	95% Percentile	0.876
95% WH Approx. Gamma UTL with 95% Coverage	1.366	99% Percentile	1.107
95% HW Approx. Gamma UTL with 95% Coverage	1.43		
95% WH USL	0.831	95% HW USL	0.841
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.873	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.26	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	1.708	90% Percentile (z)	0.724
95% UPL (t)	0.993	95% Percentile (z)	0.823
95% USL	0.876	99% Percentile (z)	1.047
Nonparametric Distribution Free Background Statistics			
Data appear Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	6	95% UTL with 95% Coverage	0.7
Approx, f used to compute achieved CC	0.316	Approximate Actual Confidence Coefficient achieved by UT	0.265
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.7	95% BCA Bootstrap UTL with 95% Coverage	0.7
95% UPL	0.7	90% Percentile	0.65
90% Chebyshev UPL	1.002	95% Percentile	0.675
95% Chebyshev UPL	1.238	99% Percentile	0.695
95% USL	0.7		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, vanadium)

General Statistics

Total Number of Observations	3129	Number of Missing Observations	0
Number of Distinct Observations	192		
Number of Detects	3054	Number of Non-Detects	75
Number of Distinct Detects	192	Number of Distinct Non-Detects	1
Minimum Detect	10	Minimum Non-Detect	10
Maximum Detect	1080	Maximum Non-Detect	10
Variance Detected	2056	Percent Non-Detects	2.40%
Mean Detected	81.48	SD Detected	45.35
Mean of Detected Logged Data	4.291	SD of Detected Logged Data	0.461

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.691	d2max (for USL)	4.154

Normal GOF Test on Detects Only

Lilliefors Test Statistic	0.148	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0162	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	79.77	KM SD	46.11
95% UTL95% Coverage	157.7	95% KM UPL (t)	155.6
90% KM Percentile (z)	138.9	95% KM Percentile (z)	155.6
99% KM Percentile (z)	187	95% KM USL	271.3

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	79.65	SD	46.3
95% UTL95% Coverage	157.9	95% UPL (t)	155.8
90% Percentile (z)	139	95% Percentile (z)	155.8
99% Percentile (z)	187.4	95% USL	272

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.27E+27	Anderson-Darling GOF Test	
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0844	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0183	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.726	k star (bias corrected MLE)	4.722
Theta hat (MLE)	17.24	Theta star (bias corrected MLE)	17.26
nu hat (MLE)	28867	nu star (bias corrected)	28840
MLE Mean (bias corrected)	81.48		
MLE Sd (bias corrected)	37.5	95% Percentile of Chisquare (2kstar)	17.54

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	79.77
Maximum	1080	Median	70
SD	46.12	CV	0.578
k hat (MLE)	3.629	k star (bias corrected MLE)	3.626
Theta hat (MLE)	21.98	Theta star (bias corrected MLE)	22
nu hat (MLE)	22711	nu star (bias corrected)	22691
MLE Mean (bias corrected)	79.77	MLE Sd (bias corrected)	41.89
95% Percentile of Chisquare (2kstar)	14.43	90% Percentile	135.9
95% Percentile	158.8	99% Percentile	207.7

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	159.6	163.4	95% Approx. Gamma UPL	156.7	160.2
95% Gamma USL	379.4	424.9			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	79.77	SD (KM)	46.11
Variance (KM)	2126	SE of Mean (KM)	0.824
k hat (KM)	2.993	k star (KM)	2.99
nu hat (KM)	18730	nu star (KM)	18713
theta hat (KM)	26.65	theta star (KM)	26.68
80% gamma percentile (KM)	113.8	90% gamma percentile (KM)	141.6
95% gamma percentile (KM)	167.6	99% gamma percentile (KM)	223.8

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	158.2	160.9	95% Approx. Gamma UPL	155.4	157.9
95% KM Gamma Percentile	155.3	157.8	95% Gamma USL	373	411.6

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0656	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0162	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	80.08	Mean in Log Scale	4.263
SD in Original Scale	45.69	SD in Log Scale	0.49
95% UTL95% Coverage	162.7	95% BCA UTL95% Coverage	160

Background Statistics for all samples in Data Sets with Non-Detects

95% Bootstrap (%) UTL95% Coverage	160	95% UPL (t)	159.1
90% Percentile (z)	133.1	95% Percentile (z)	159
99% Percentile (z)	222.1	95% USL	544

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	4.243	95% KM UTL (Lognormal)95% Coverage	175.8
KM SD of Logged Data	0.548	95% KM UPL (Lognormal)	171.5
95% KM Percentile Lognormal (z)	171.5	95% KM USL (Lognormal)	678

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	79.65	Mean in Log Scale	4.227
SD in Original Scale	46.3	SD in Log Scale	0.613
95% UTL95% Coverage	193.1	95% UPL (t)	187.9
90% Percentile (z)	150.3	95% Percentile (z)	187.8
99% Percentile (z)	285.2	95% USL	874.6

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	2993	95% UTL with95% Coverage	160
Approx, f used to compute achieved CC	1.15	Approximate Actual Confidence Coefficient achieved by UT	0.951
Approximate Sample Size needed to achieve specified CC	3126	95% UPL	152
95% USL	1080	95% KM Chebyshev UPL	280.8

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, zinc)

General Statistics			
Total Number of Observations	847	Number of Distinct Observations	104
Minimum	5	First Quartile	27
Second Largest	687	Median	38
Maximum	1650	Third Quartile	53
Mean	47.06	SD	67.56
Coefficient of Variation	1.436	Skewness	17.29
Mean of logged Data	3.63	SD of logged Data	0.597
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834
Normal GOF Test			
Shapiro Wilk Test Statistic	0.312	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.283	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0307	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	164.2	90% Percentile (z)	133.6
95% UPL (t)	158.4	95% Percentile (z)	158.2
95% USL	306.1	99% Percentile (z)	204.2
Gamma GOF Test			
A-D Test Statistic	1.18E+28	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.765	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.105	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0326	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	2.412	k star (bias corrected MLE)	2.404
Theta hat (MLE)	19.51	Theta star (bias corrected MLE)	19.57
nu hat (MLE)	4086	nu star (bias corrected)	4072
MLE Mean (bias corrected)	47.06	MLE Sd (bias corrected)	30.35
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	101.2	90% Percentile	87.71
95% Hawkins Wixley (HW) Approx. Gamma UPL	99.9	95% Percentile	105.4
95% WH Approx. Gamma UTL with 95% Coverage	105.5	99% Percentile	144.3
95% HW Approx. Gamma UTL with 95% Coverage	104.3		
95% WH USL	250.4	95% HW USL	263.9
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.977	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	6.04E-05	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0506	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0307	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	106.2	90% Percentile (z)	81.02
95% UPL (t)	100.8	95% Percentile (z)	100.6
95% USL	371.7	99% Percentile (z)	151.1
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	814	95% UTL with 95% Coverage	99
Approx, f used to compute achieved CC	1.26	Approximate Actual Confidence Coefficient achieved by UT	0.922
		Approximate Sample Size needed to achieve specified CC	877
95% Percentile Bootstrap UTL with 95% Coverage	99.4	95% BCA Bootstrap UTL with 95% Coverage	99
95% UPL	95	90% Percentile	75.8
90% Chebyshev UPL	249.8	95% Percentile	94.7
95% Chebyshev UPL	341.7	99% Percentile	181.6
95% USL	1650		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

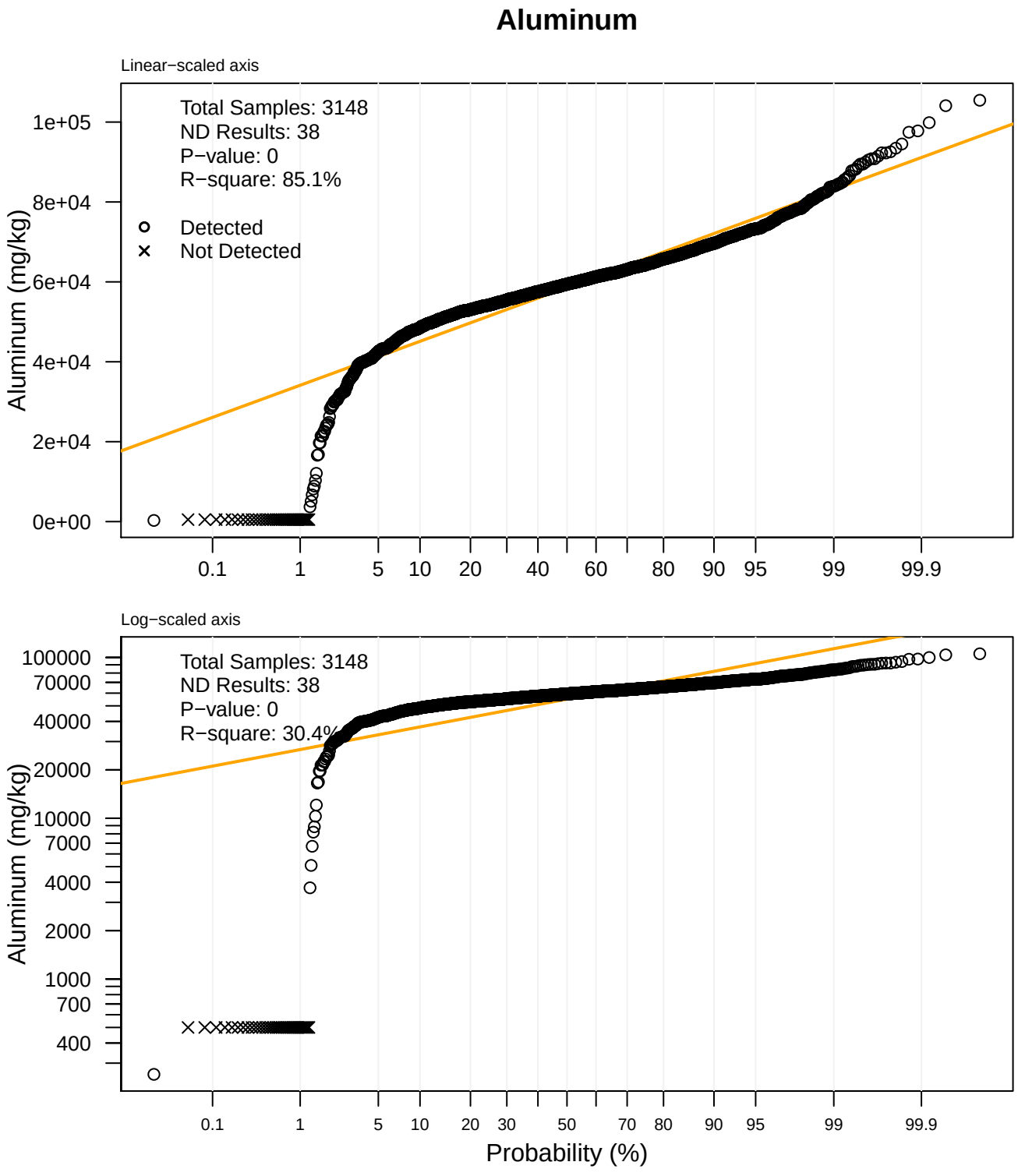


Figure C1−1. Boxplots of aluminum concentrations by total metals methods

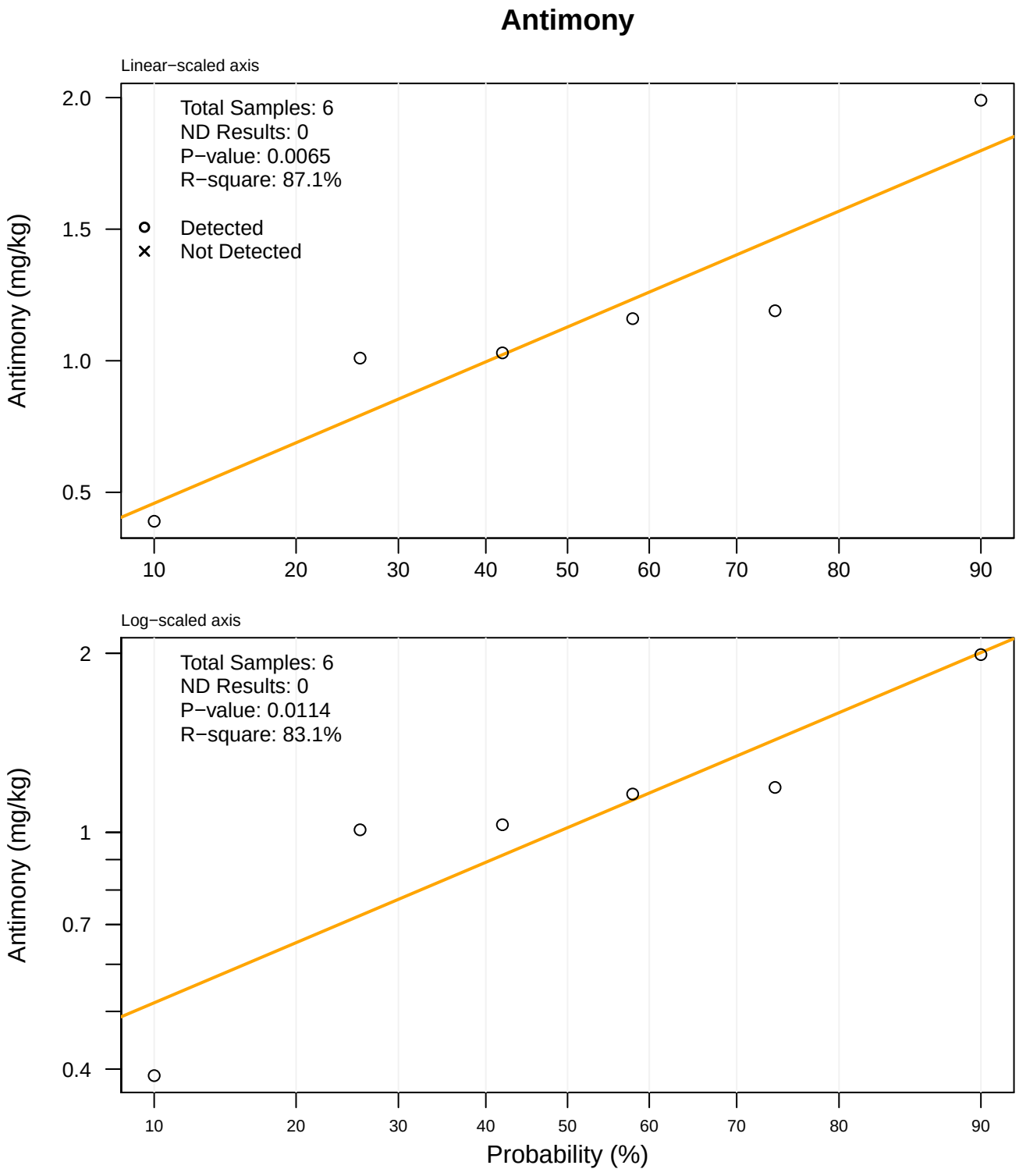


Figure C1−2. Boxplots of antimony concentrations by total metals methods

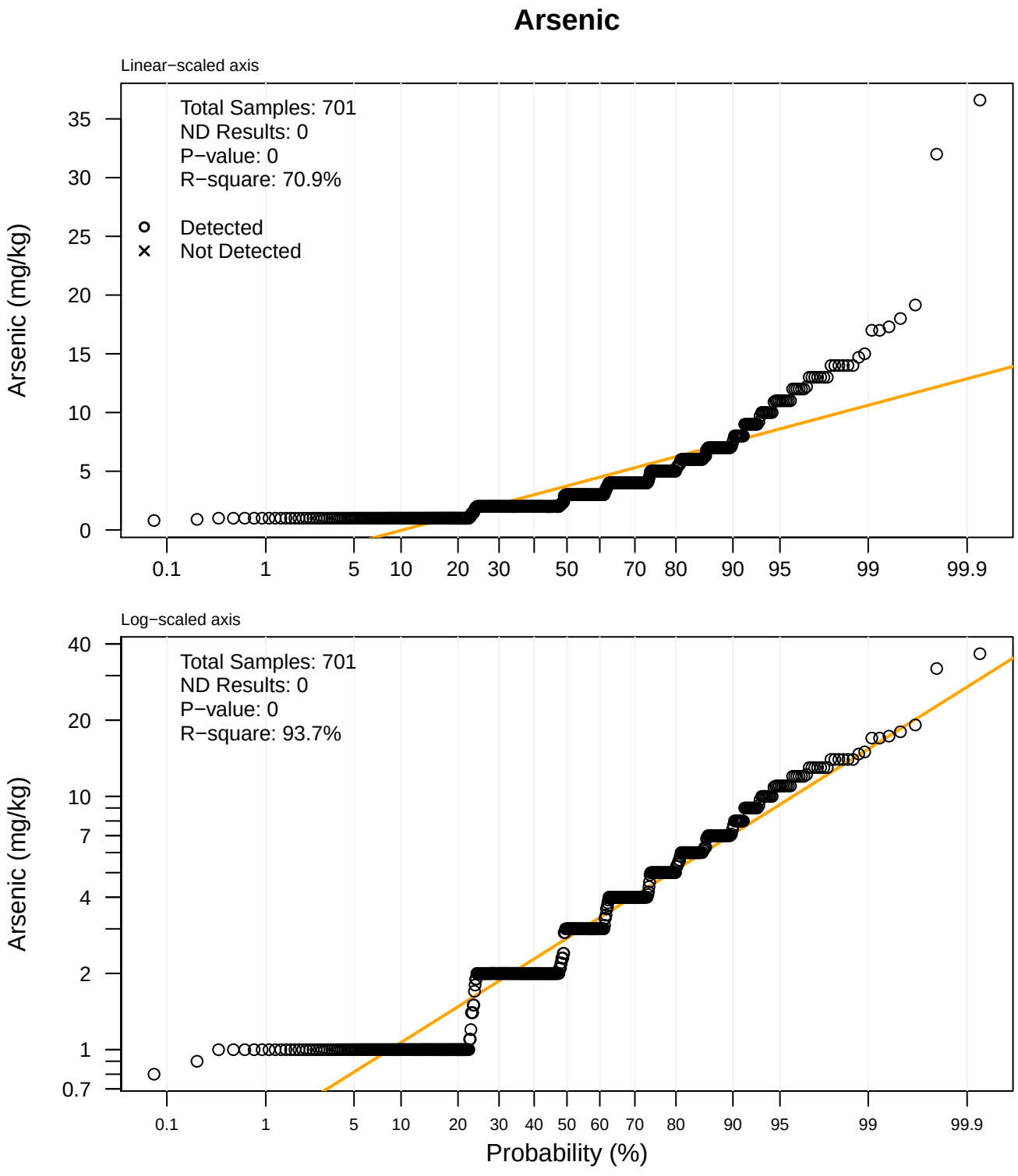


Figure C1−3. Boxplots of arsenic concentrations by total metals methods

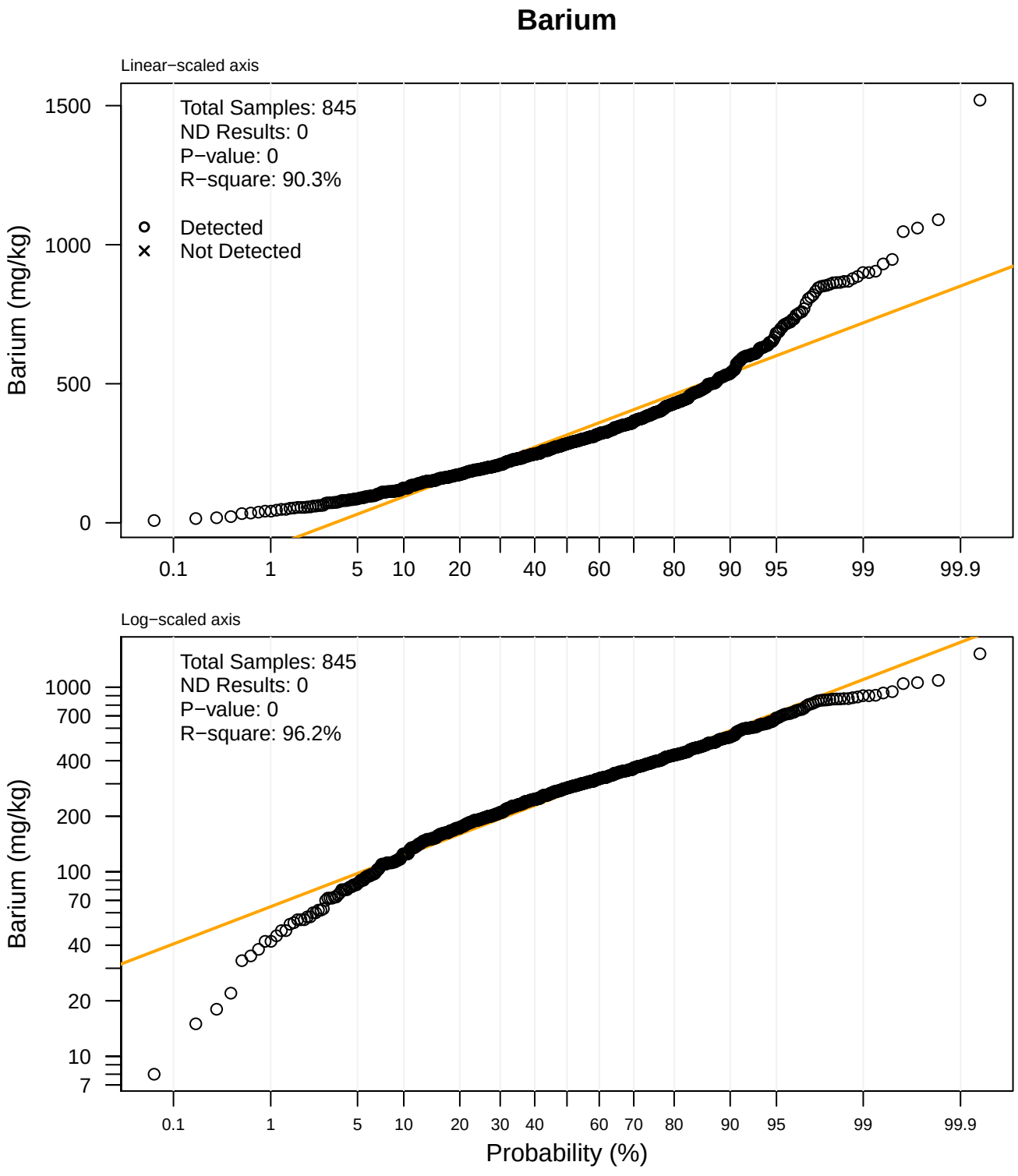


Figure C1−4. Boxplots of barium concentrations by total metals methods

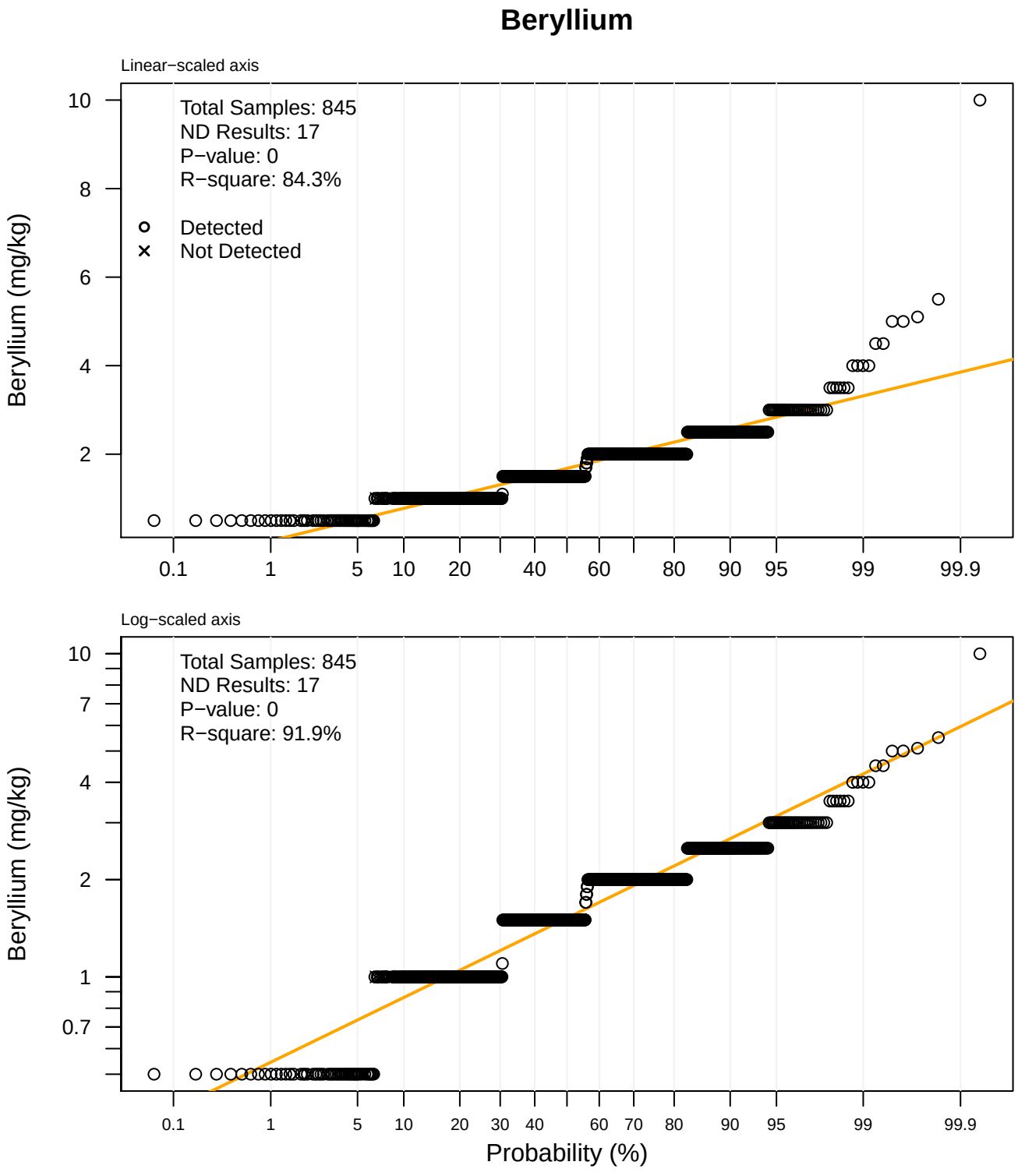


Figure C1−5. Boxplots of beryllium concentrations by total metals methods

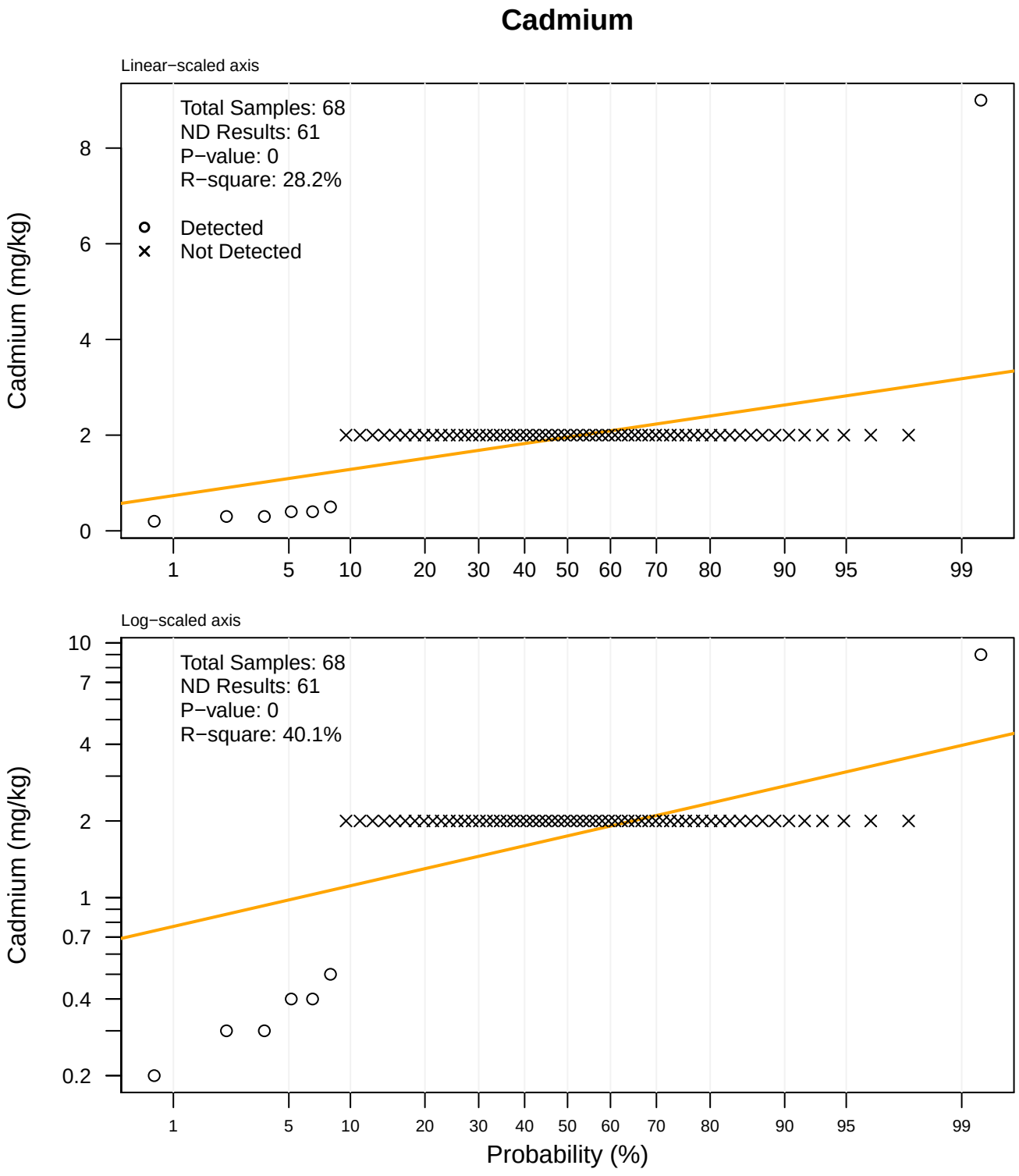


Figure C1−6. Boxplots of cadmium concentrations by total metals methods

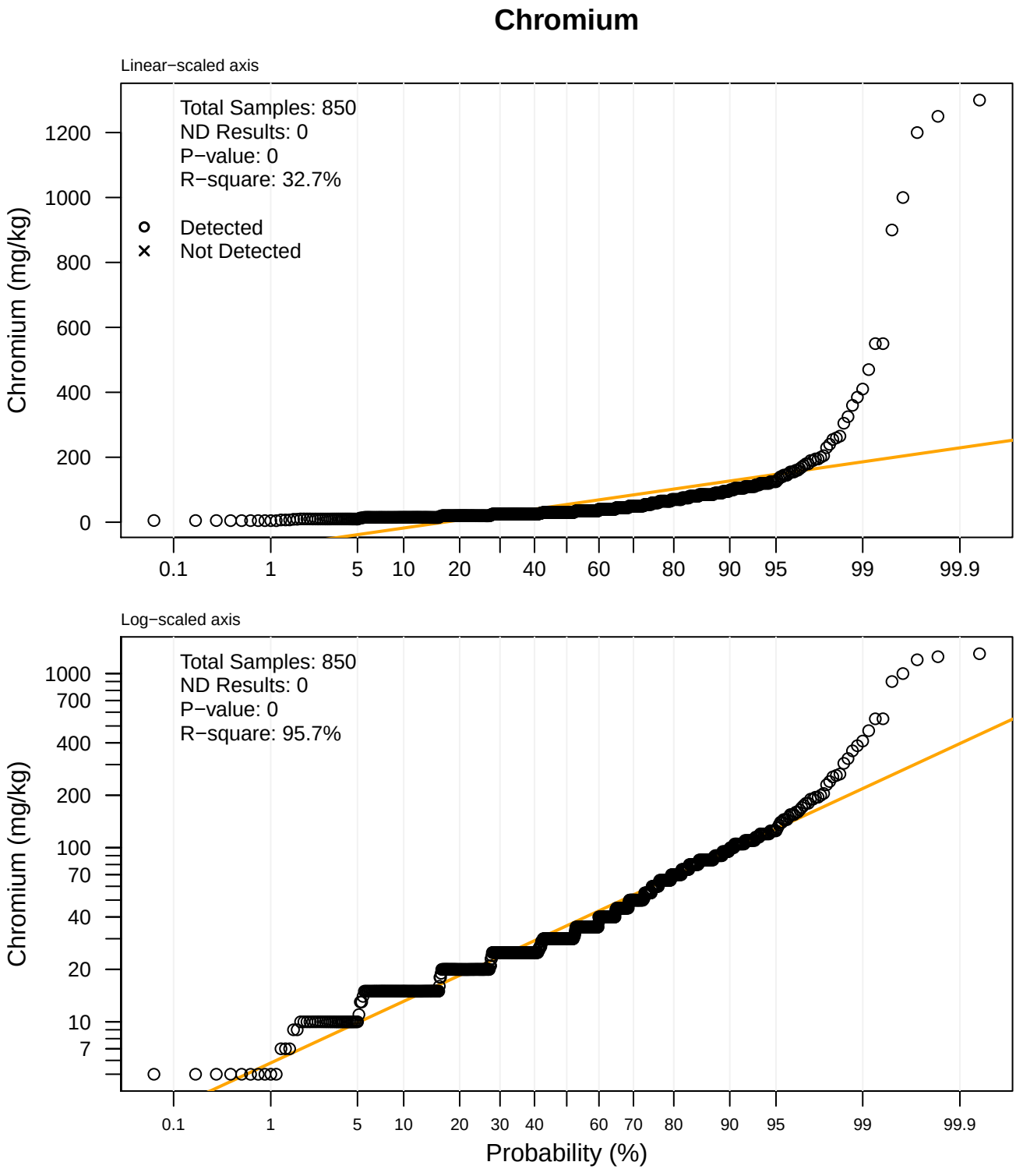


Figure C1−7. Boxplots of chromium concentrations by total metals methods

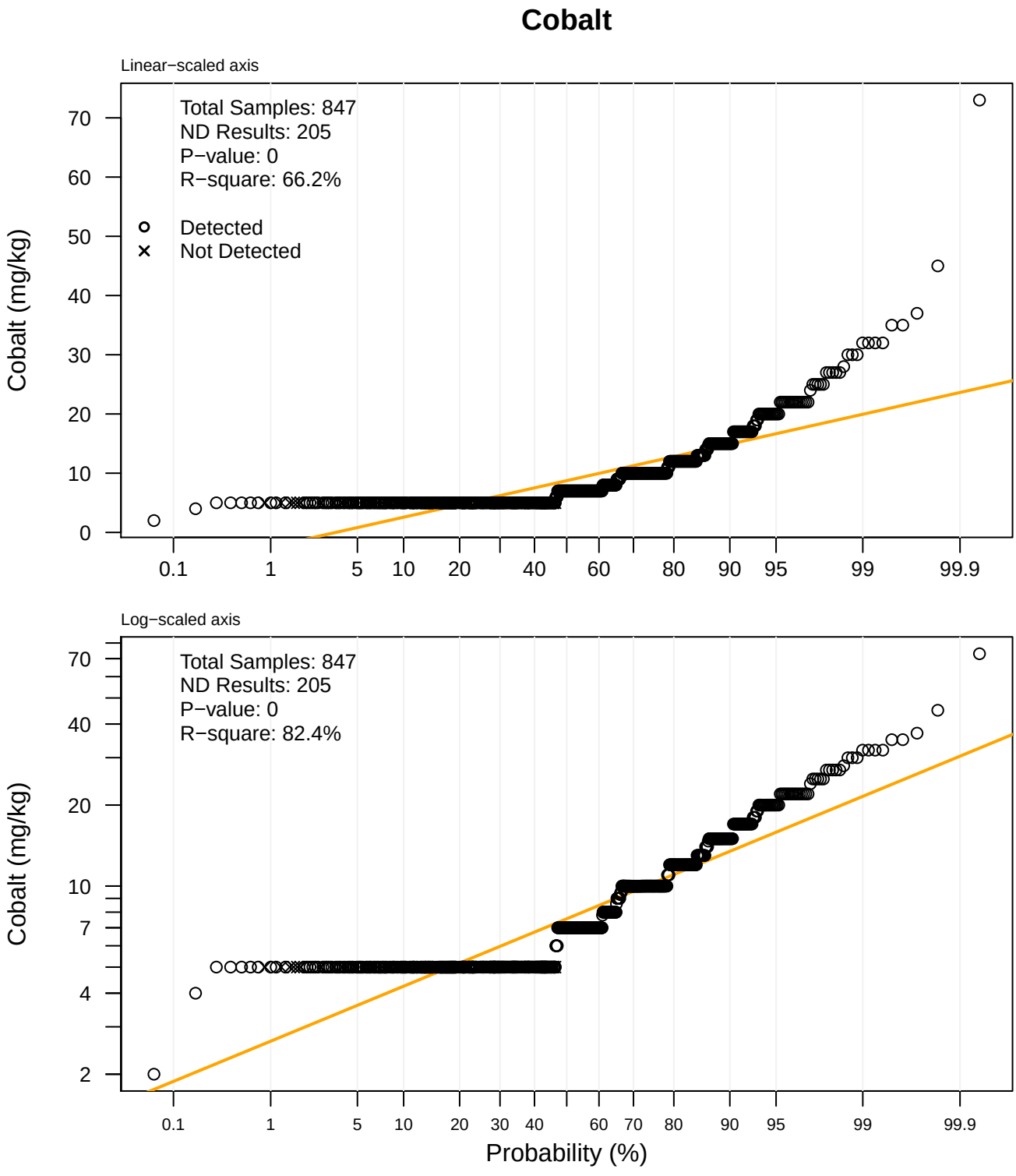


Figure C1−8. Boxplots of cobalt concentrations by total metals methods

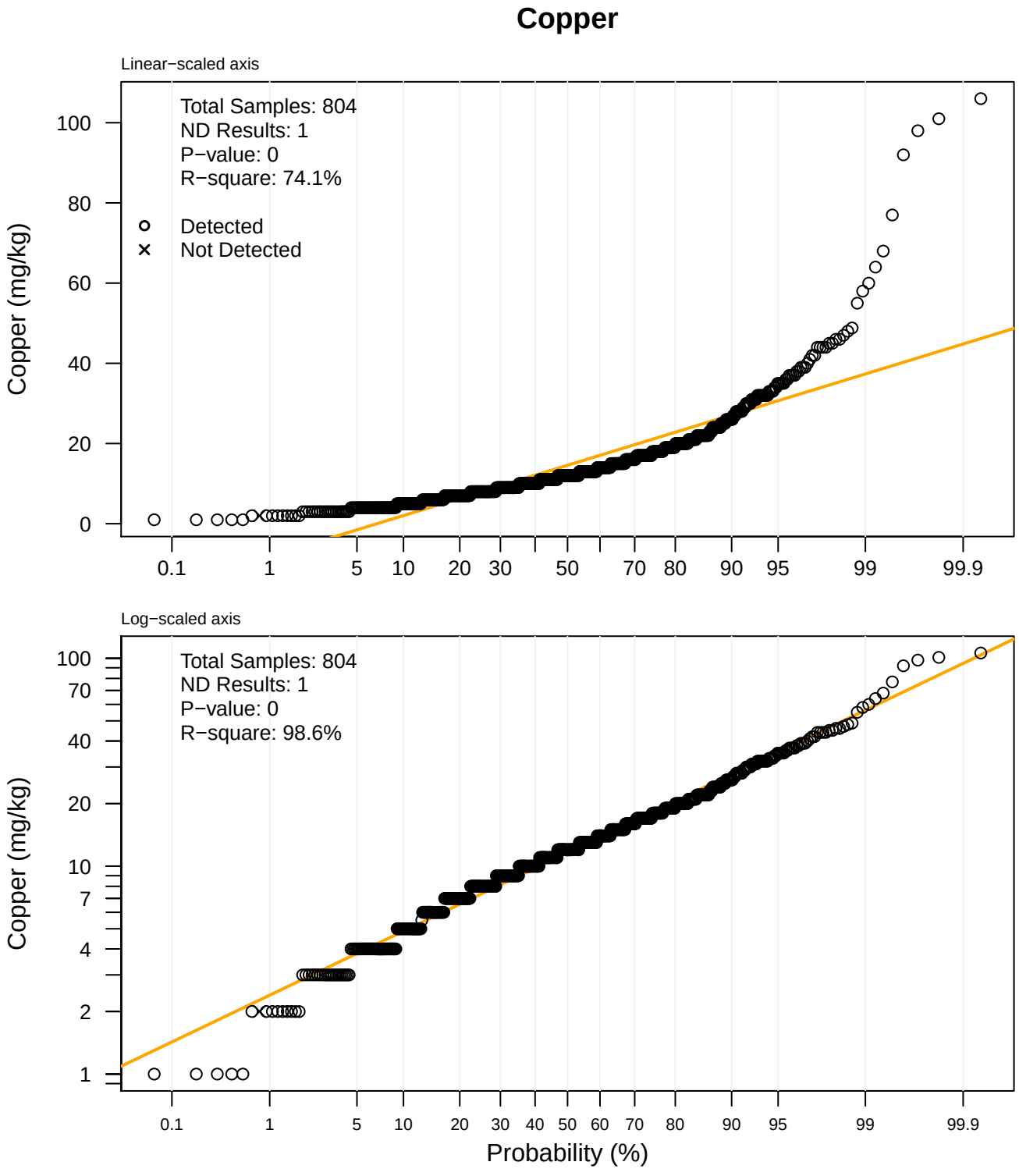


Figure C1−9. Boxplots of copper concentrations by total metals methods

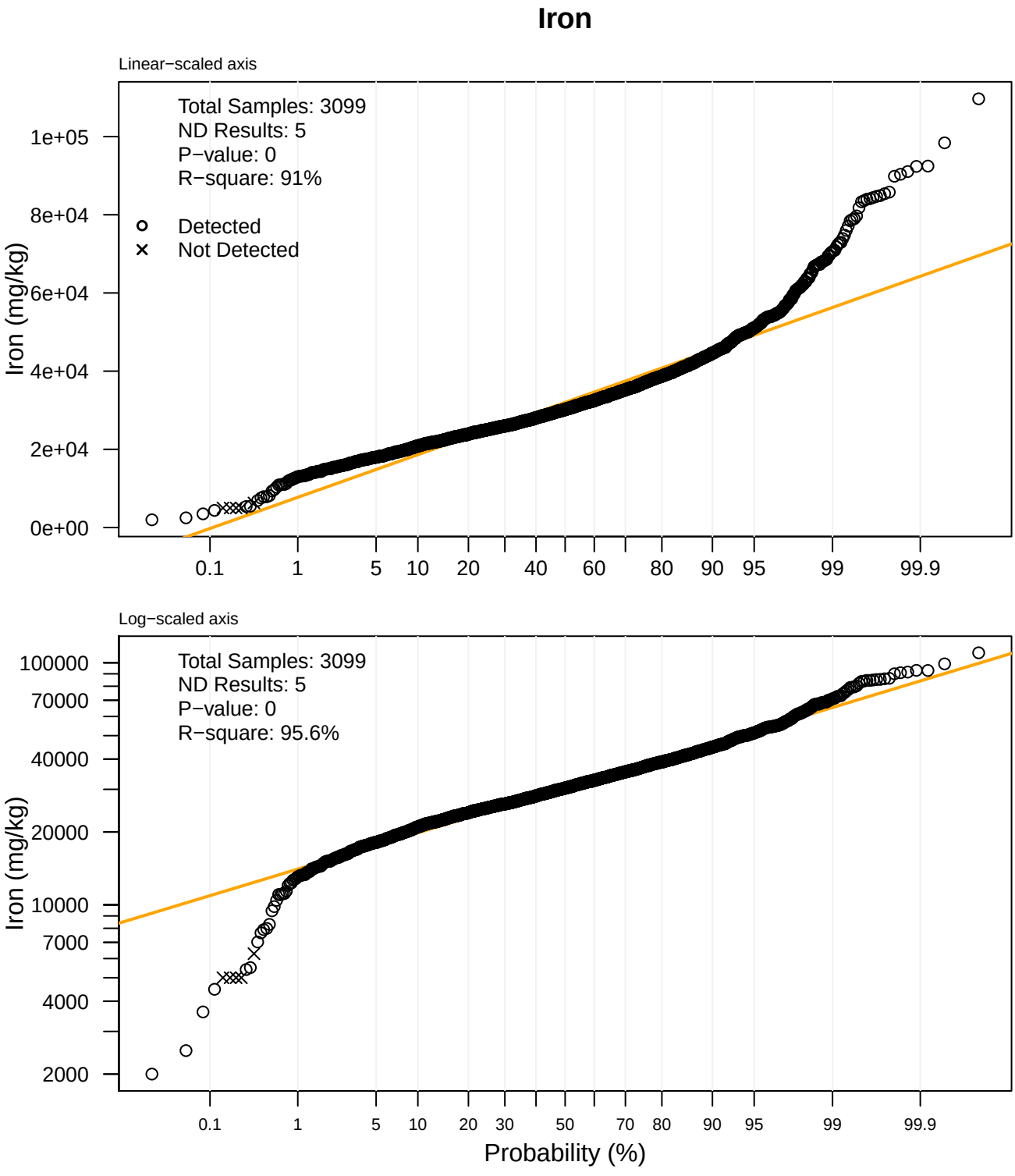


Figure C1−10. Boxplots of iron concentrations by total metals methods

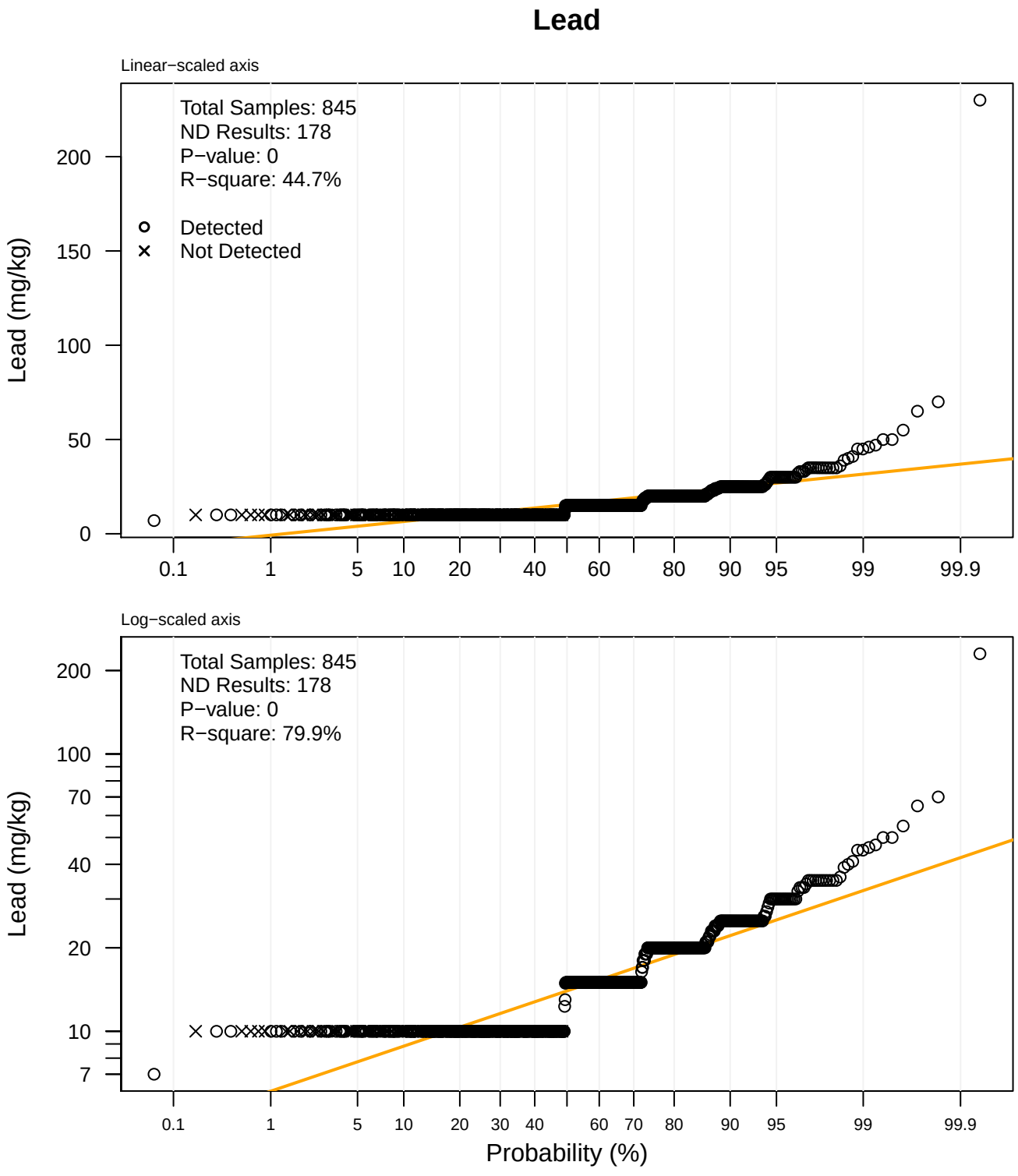


Figure C1−11. Boxplots of lead concentrations by total metals methods

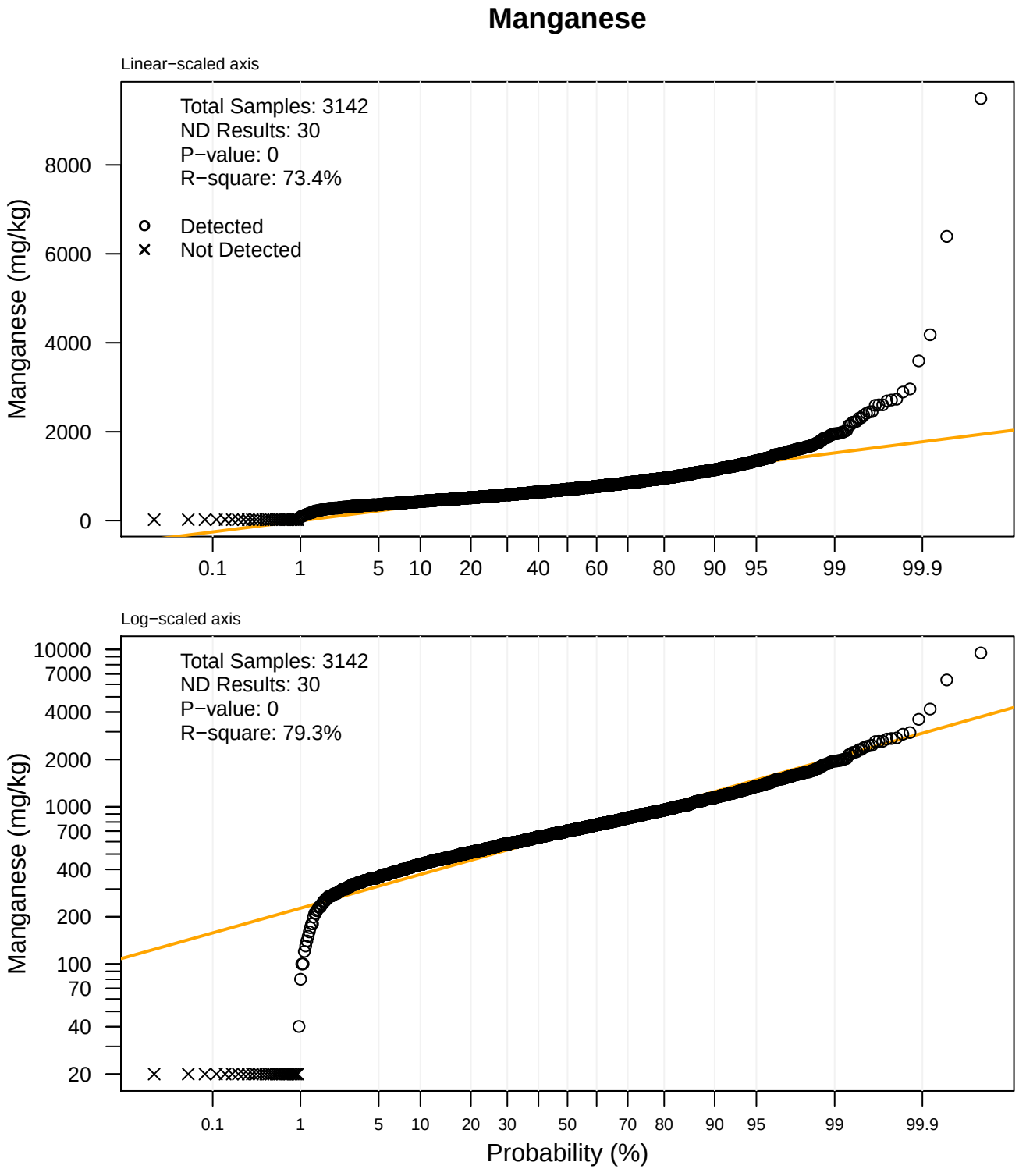


Figure C1−12. Boxplots of manganese concentrations by total metals methods

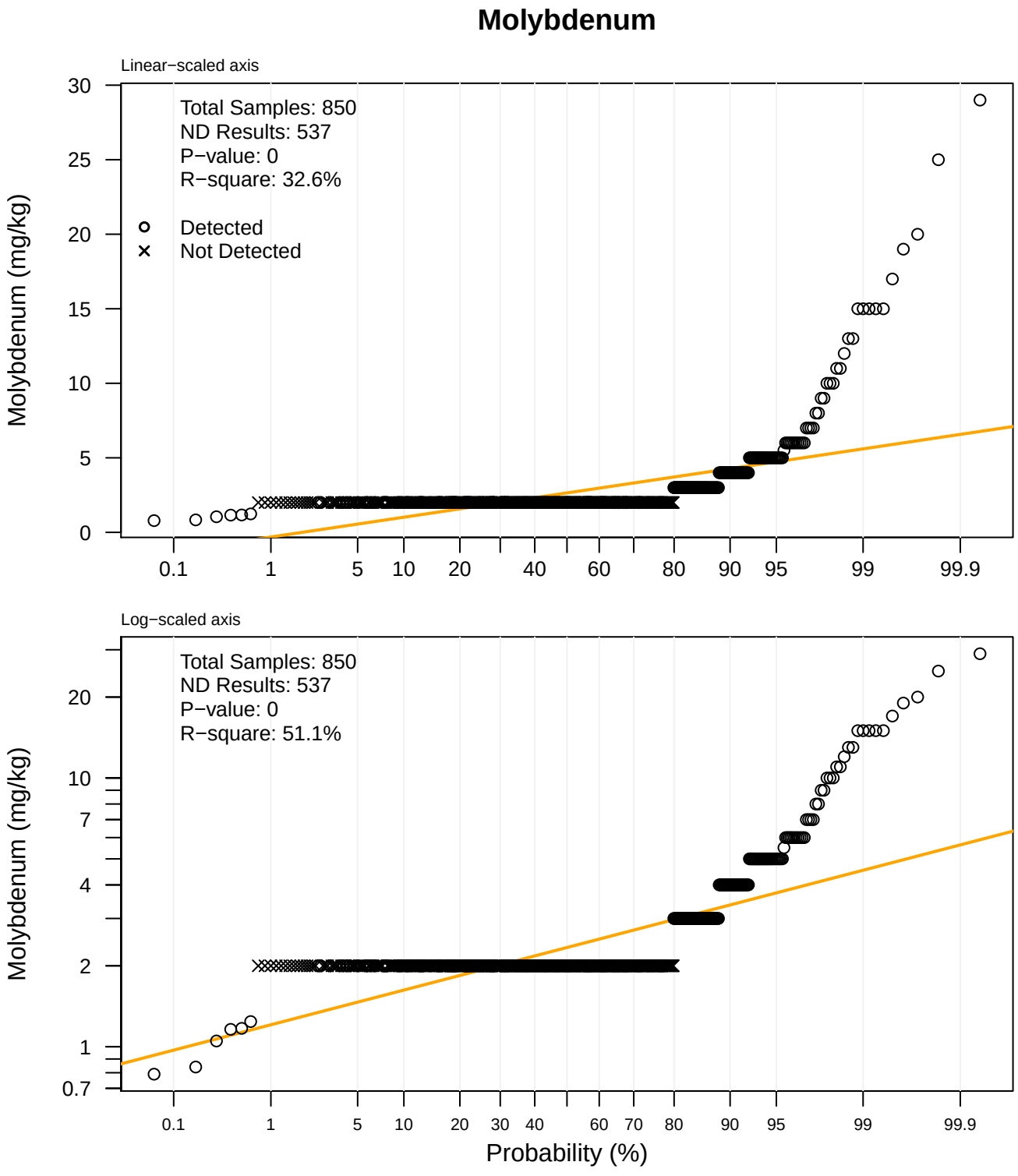


Figure C1−13. Boxplots of molybdenum concentrations by total metals methods

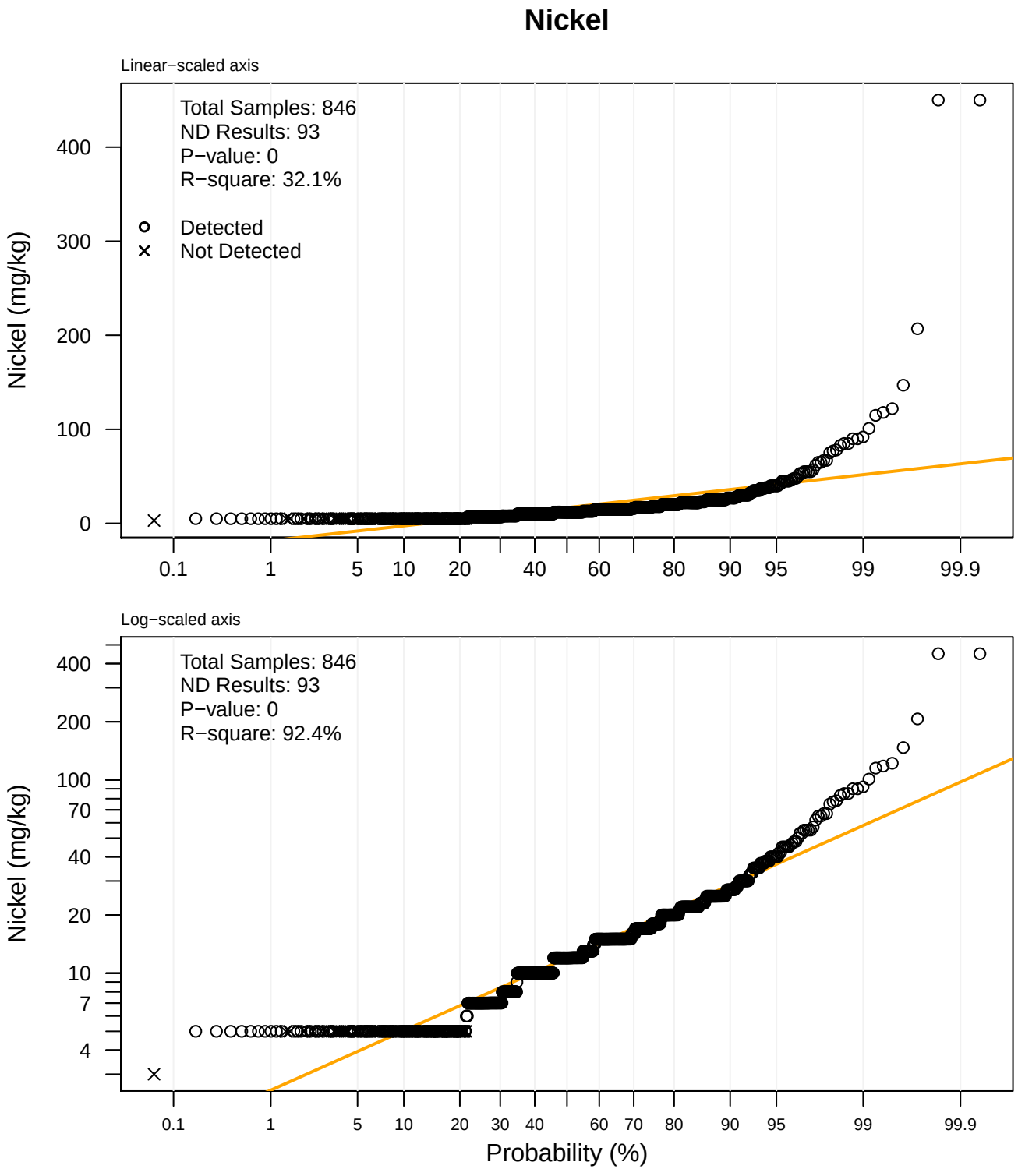


Figure C1−14. Boxplots of nickel concentrations by total metals methods

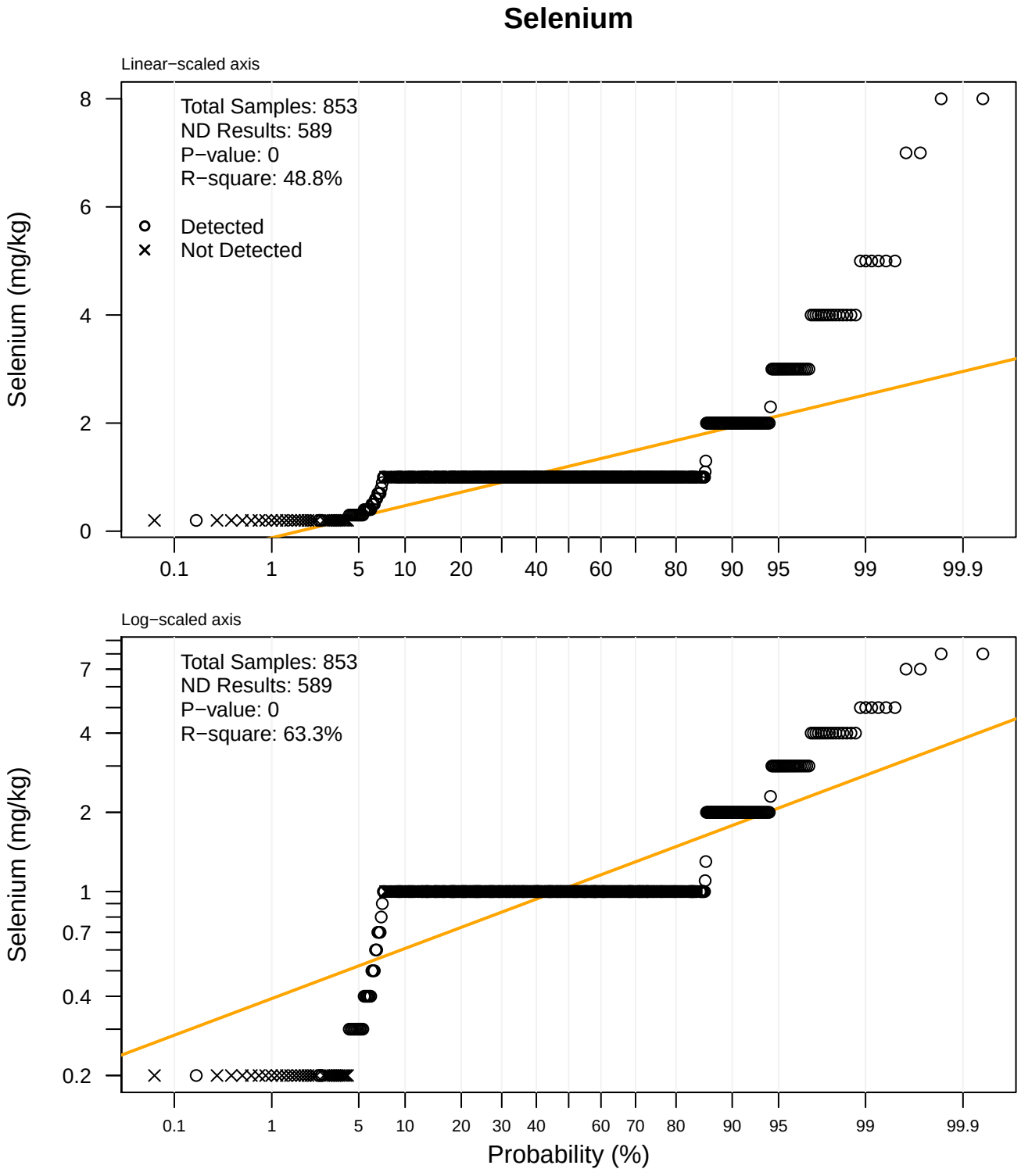


Figure C1−15. Boxplots of selenium concentrations by total metals methods

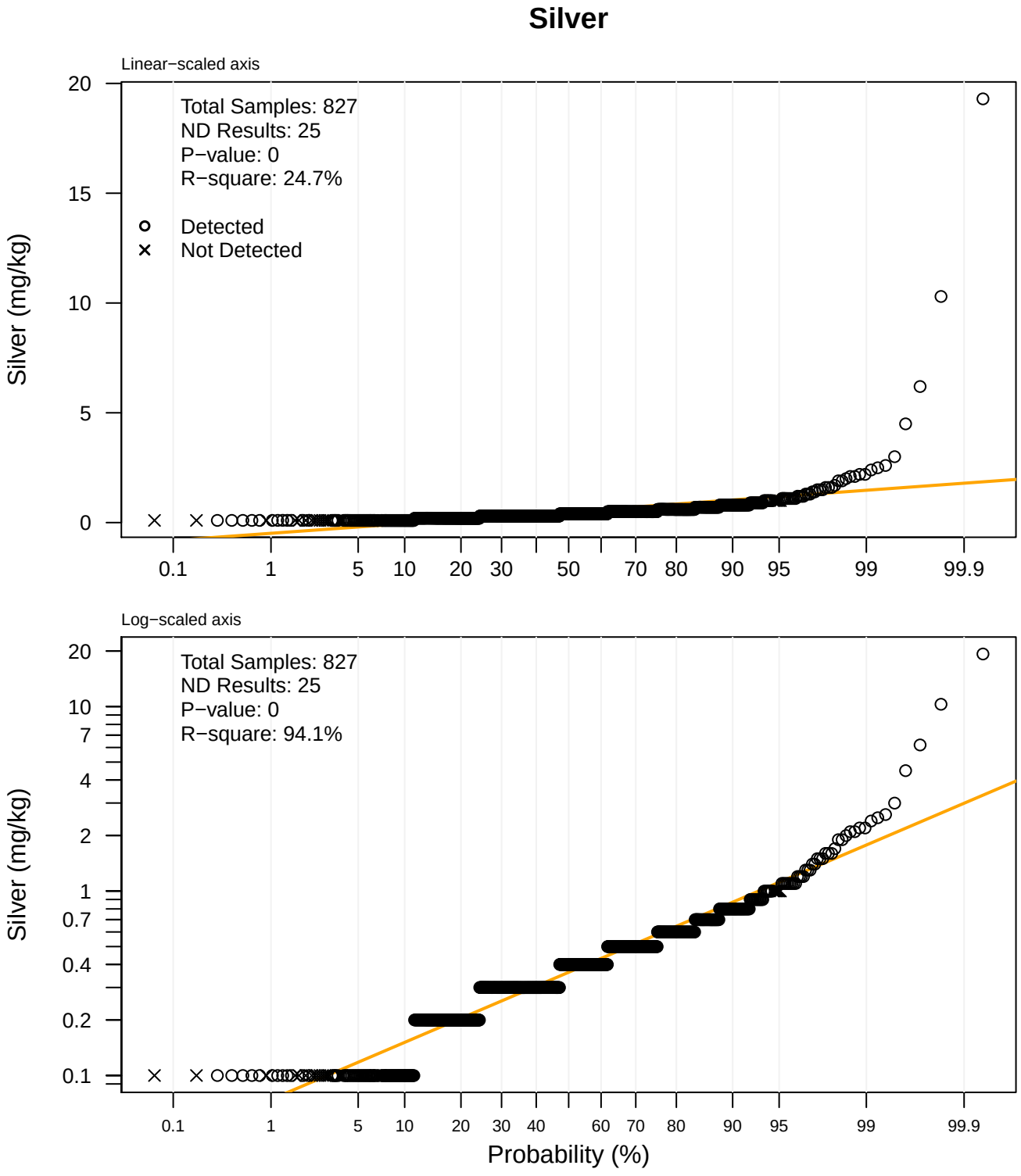


Figure C1−16. Boxplots of silver concentrations by total metals methods

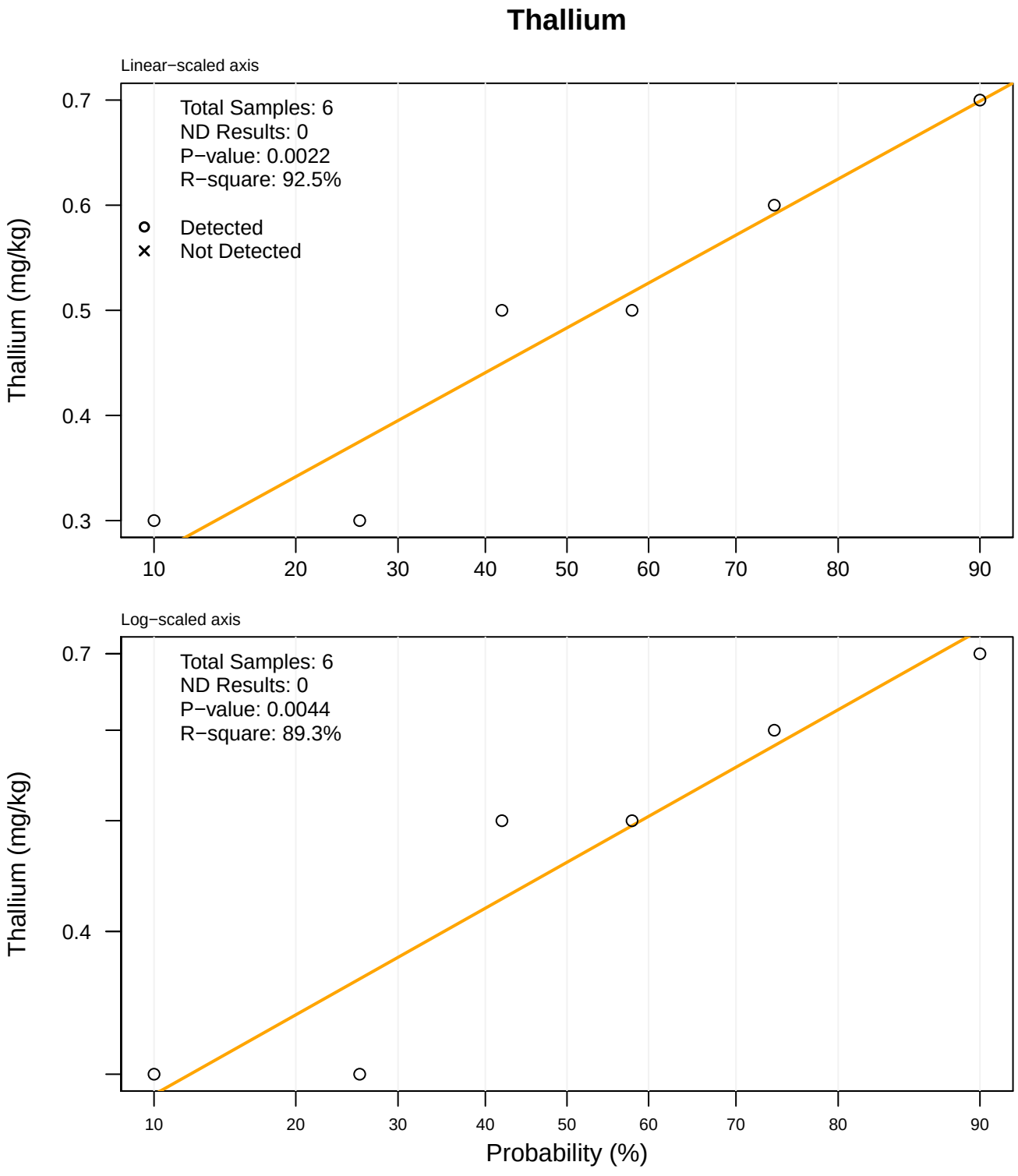


Figure C1−17. Boxplots of thallium concentrations by total metals methods

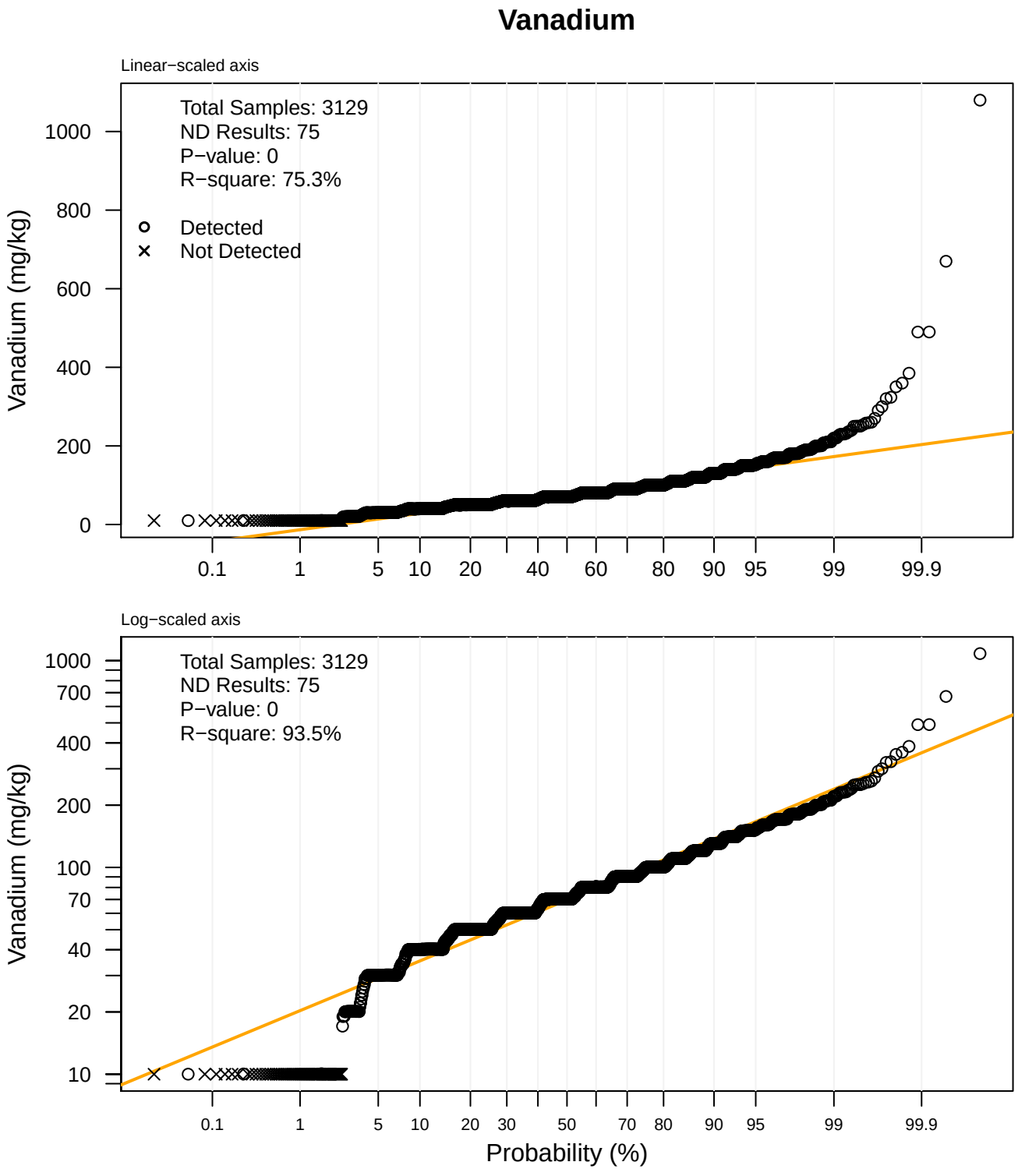


Figure C1−18. Boxplots of vanadium concentrations by total metals methods

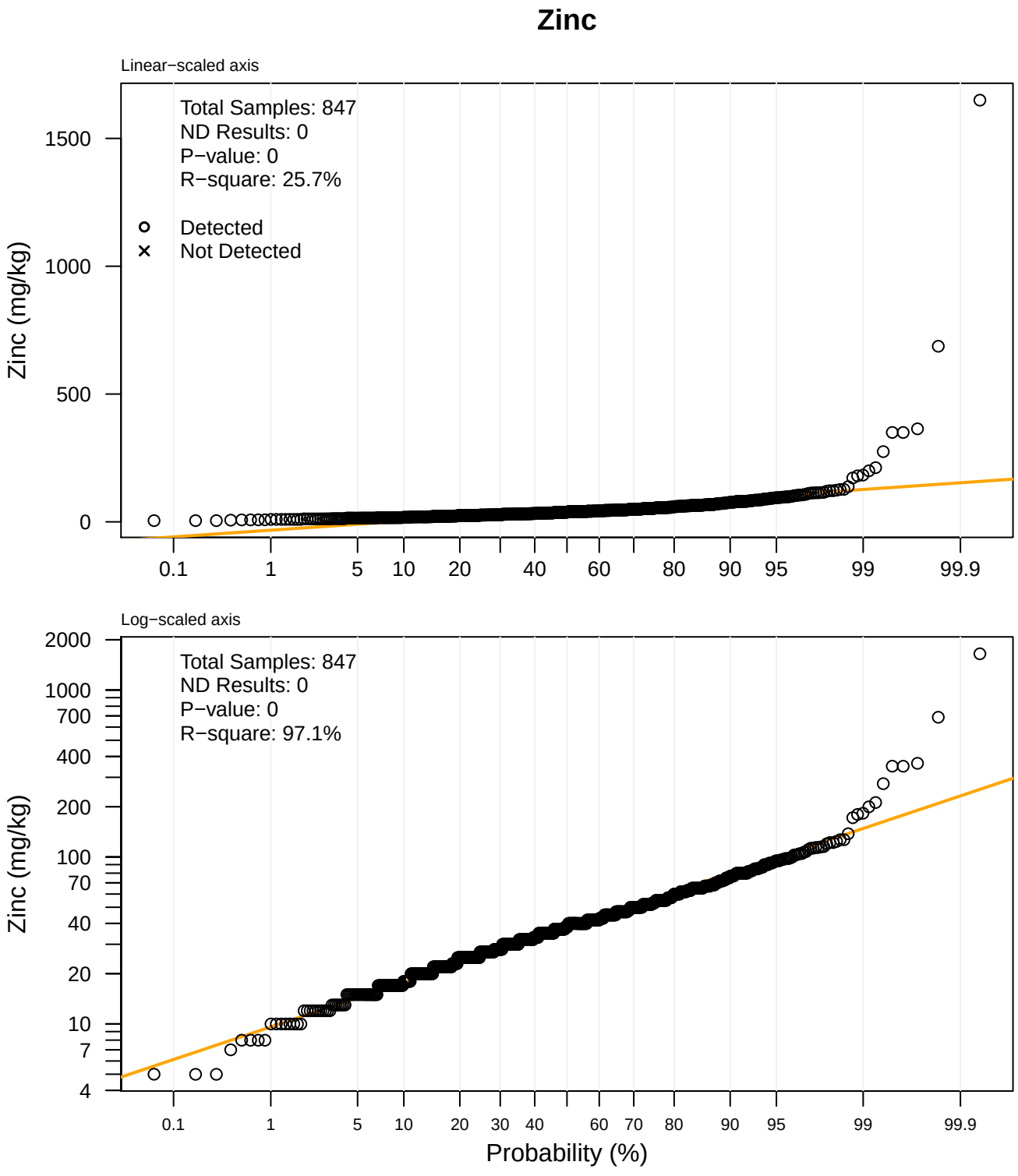


Figure C1−19. Boxplots of zinc concentrations by total metals methods

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, aluminum)

Total N	3148
Number NDs	38
Number Detects	3110
Mean of Detects	10.97
SD of Detects	0.218
Number of data	3110
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	10.97	0.218	5.545	3110	24.94	-4.3	-4.64	255.954578
2	10.98	0.195	8.216	3109	14.17	-4.3	-4.64	3699.67405
3	10.98	0.188	8.537	3108	12.95	-4.3	-4.64	5100.02132
4	10.98	0.183	8.81	3107	11.82	-4.3	-4.64	6700.91927
5	10.98	0.179	9.012	3106	10.97	-4.3	-4.64	8200.9067
6	10.98	0.176	9.091	3105	10.75	-4.3	-4.64	8875.05667
7	10.98	0.172	9.24	3104	10.09	-4.3	-4.64	10301.0386
8	10.98	0.17	9.401	3103	9.31	-4.3	-4.64	12100.4752
9	10.98	0.167	9.716	3102	7.558	-4.3	-4.64	16580.7888
10	10.98	0.166	9.729	3101	7.552	-4.3	-4.64	16797.7462

For 5% significance level, there are 10 Potential Outliers
5.545, 8.216, 8.537, 8.81, 9.012, 9.091, 9.24, 9.401, 9.716, 9.729

For 1% Significance Level, there are 10 Potential Outliers
5.545, 8.216, 8.537, 8.81, 9.012, 9.091, 9.24, 9.401, 9.716, 9.729

Outlier Tests for Selected Variables excluding nondetects

Dixon's Outlier Test for meas_value_update (total, antimony)

Total N = 6
Number NDs = 0
Number Detects = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698
Note: NDs excluded from Outlier Test

1. Data Value 1.99 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.500

For 10% significance level, 1.99 is an outlier.
For 5% significance level, 1.99 is not an outlier.
For 1% significance level, 1.99 is not an outlier.

2. Data Value 0.39 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.388

For 10% significance level, 0.39 is not an outlier.
For 5% significance level, 0.39 is not an outlier.
For 1% significance level, 0.39 is not an outlier.

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, arsenic)

Total N	701
Number NDs	0
Number Detects	701
Mean of Detects	1.013
SD of Detects	0.764
Number of data	701
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	1.013	0.763	3.6	1	3.39	-3.927	4.286	36.5982344
2	1.009	0.758	3.466	2	3.241	-3.927	4.286	32.0084522
3	1.006	0.753	2.952	3	2.586	-3.927	4.286	19.1442039
4	1.003	0.75	2.89	4	2.518	-3.926	4.286	17.9933096
5	1	0.747	2.851	5	2.478	-3.926	4.286	17.3050783
6	0.997	0.744	2.833	6	2.467	-3.925	4.286	16.9963735
7	0.995	0.741	2.833	7	2.48	-3.925	4.285	16.9963735
8	0.992	0.739	2.708	8	2.323	-3.925	4.285	14.999247
9	0.99	0.736	2.688	9	2.307	-3.924	4.285	14.702242
10	0.987	0.734	2.639	10	2.251	-3.924	4.284	13.9991974

For 5% significance level, there are 10 Potential Outliers
3.6, 3.466, 2.952, 2.89, 2.851, 2.833, 2.833, 2.708, 2.688, 2.639

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, barium)

Total N	845
Number NDs	0
Number Detects	845
Mean of Detects	5.587
SD of Detects	0.621
Number of data	845
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	5.587	0.621	2.079	845	5.653	-3.978	-4.331	7.99646845
2	5.591	0.609	2.708	844	4.731	-3.978	-4.331	14.999247
3	5.595	0.602	2.89	843	4.495	-3.977	-4.331	17.9933096
4	5.598	0.595	3.091	842	4.215	-3.977	-4.33	21.999066
5	5.601	0.589	3.497	841	3.575	-3.977	-4.33	33.0162545
6	5.603	0.585	3.555	840	3.504	-3.976	-4.33	34.98782
7	5.606	0.581	3.638	839	3.39	-3.976	-4.329	38.0157292
8	5.608	0.577	3.738	837	3.242	-3.976	-4.329	42.0138783
9	5.61	0.574	3.738	838	3.265	-3.975	-4.329	42.0138783
10	5.613	0.57	3.807	836	3.167	-3.975	-4.329	45.0151905

For 5% significance level, there are 10 Potential Outliers
2.079, 2.708, 2.89, 3.091, 3.497, 3.555, 3.638, 3.738, 3.738, 3.807

For 1% Significance Level, there are 10 Potential Outliers
2.079, 2.708, 2.89, 3.091, 3.497, 3.555, 3.638, 3.738, 3.738, 3.807

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, beryllium)

Total N	845
Number NDs	17
Number Detects	828
Mean of Detects	0.433
SD of Detects	0.453
Number of data	828
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	0.433	0.452	2.303	1	4.133	-3.972	-4.326	10.0041499
2	0.43	0.448	1.705	2	2.843	-3.972	-4.326	5.50138567
3	0.429	0.446	1.629	3	2.689	-3.972	-4.325	5.09877339
4	0.427	0.445	1.609	4	2.658	-3.971	-4.325	4.99781092
5	0.426	0.443	1.609	5	2.671	-3.971	-4.325	4.99781092
6	0.425	0.441	-0.693	780	2.532	-3.971	-4.324	0.5000736
7	0.426	0.44	-0.693	781	2.544	-3.971	-4.324	0.5000736
8	0.427	0.438	-0.693	782	2.556	-3.97	-4.324	0.5000736
9	0.429	0.437	-0.693	783	2.567	-3.97	-4.323	0.5000736
10	0.43	0.435	-0.693	784	2.579	-3.97	-4.323	0.5000736

For 5% significance level, there are 10 Potential Outliers
2.303, 1.705, 1.629, 1.609, 1.609, -0.693, -0.693, -0.693, -0.693, -0.693

For 1% Significance Level, there are 10 Potential Outliers
2.303, 1.705, 1.629, 1.609, 1.609, -0.693, -0.693, -0.693, -0.693, -0.693

Outlier Tests for Selected Variables excluding nondetects

Dixon's Outlier Test for LNmeas_value_update (total, cadmium)

Total N = 68
Number NDs = 61
Number Detects = 7
10% critical value: 0.434
5% critical value: 0.507
1% critical value: 0.637
Note: NDs excluded from Outlier Test

1. Data Value 2.19722457733622 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.759

For 10% significance level, 2.19722457733622 is an outlier.
For 5% significance level, 2.19722457733622 is an outlier.
For 1% significance level, 2.19722457733622 is an outlier.

2. Data Value -1.6094379124341 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.107

For 10% significance level, -1.6094379124341 is not an outlier.
For 5% significance level, -1.6094379124341 is not an outlier.
For 1% significance level, -1.6094379124341 is not an outlier.

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, chromium)

Total N	850
Number NDs	0
Number Detects	850
Mean of Detects	3.573
SD of Detects	0.797
Number of data	850
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	3.573	0.796	7.17	1	4.517	-3.979	-4.333	1299.8446
2	3.568	0.788	7.131	2	4.523	-3.979	-4.333	1250.12647
3	3.564	0.779	7.09	3	4.529	-3.979	-4.332	1199.9078
4	3.56	0.77	6.908	4	4.351	-3.979	-4.332	1000.24475
5	3.556	0.761	6.802	5	4.264	-3.978	-4.332	899.644783
6	3.552	0.753	6.31	6	3.66	-3.978	-4.331	550.044949
7	3.549	0.748	6.31	7	3.692	-3.978	-4.331	550.044949
8	3.546	0.742	6.153	8	3.512	-3.977	-4.331	470.12565
9	3.543	0.737	6.016	9	3.355	-3.977	-4.33	409.93557
10	3.54	0.733	5.953	10	3.294	-3.977	-4.33	384.906328

For 5% significance level, there are 10 Potential Outliers
7.17, 7.131, 7.09, 6.908, 6.802, 6.31, 6.31, 6.153, 6.016, 5.953

For 1% Significance Level, there are 10 Potential Outliers
7.17, 7.131, 7.09, 6.908, 6.802, 6.31, 6.31, 6.153, 6.016, 5.953

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, cobalt)

Total N	847
Number NDs	205
Number Detects	642
Mean of Detects	2.155
SD of Detects	0.502
Number of data	642
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	2.155	0.502	4.29	1	4.254	-3.903	4.27	72.9664685
2	2.151	0.496	3.807	2	3.339	-3.903	4.27	45.0151905
3	2.149	0.492	3.611	3	2.973	-3.902	4.27	37.0030374
4	2.147	0.489	0.693	642	2.974	-3.902	4.27	1.99970566
5	2.149	0.486	3.555	4	2.896	-3.901	4.27	34.98782
6	2.147	0.483	3.555	5	2.918	-3.901	4.269	34.98782
7	2.144	0.48	3.466	6	2.753	-3.9	4.268	32.0084522
8	2.142	0.477	3.466	7	2.772	-3.9	4.267	32.0084522
9	2.14	0.475	3.466	8	2.791	-3.9	4.266	32.0084522
10	2.138	0.472	3.466	9	2.81	-3.899	4.265	32.0084522

For 5% significance level, there are 10 Potential Outliers
4.29, 3.807, 3.611, 0.693, 3.555, 3.555, 3.466, 3.466, 3.466, 3.466

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, copper)

Total N	804
Number NDs	1
Number Detects	803
Mean of Detects	2.454
SD of Detects	0.681
Number of data	803
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	2.454	0.68	0	799	3.608	-3.964	-4.318	1
2	2.457	0.676	0	800	3.637	-3.964	-4.318	1
3	2.461	0.67	0	801	3.67	-3.964	-4.317	1
4	2.464	0.665	0	802	3.704	-3.963	-4.317	1
5	2.467	0.66	0	803	3.738	-3.963	-4.317	1
6	2.47	0.654	4.663	1	3.352	-3.963	-4.316	105.953466
7	2.467	0.65	4.615	2	3.304	-3.962	-4.316	100.987829
8	2.464	0.646	4.585	3	3.282	-3.962	-4.316	98.0031871
9	2.462	0.642	4.522	4	3.208	-3.962	-4.315	92.019453
10	2.459	0.638	4.344	5	2.952	-3.961	-4.315	77.014984

For 5% significance level, there are 10 Potential Outliers
0, 0, 0, 0, 0, 4.663, 4.615, 4.585, 4.522, 4.344

For 1% Significance Level, there are 10 Potential Outliers
0, 0, 0, 0, 0, 4.663, 4.615, 4.585, 4.522, 4.344

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, iron)

Total N	3099
Number NDs	5
Number Detects	3094
Mean of Detects	10.32
SD of Detects	0.331
Number of data	3094
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	10.32	0.331	7.601	3094	8.227	-4.299	-4.639	2000.19509
2	10.32	0.327	7.824	3093	7.637	-4.299	-4.639	2499.88498
3	10.32	0.324	8.189	3092	6.586	-4.299	-4.639	3601.11933
4	10.32	0.322	8.403	3091	5.968	-4.299	-4.639	4460.42798
5	10.32	0.32	8.594	3090	5.407	-4.299	-4.639	5399.16721
6	10.33	0.319	8.613	3089	5.376	-4.299	-4.639	5502.73214
7	10.33	0.317	8.854	3088	4.642	-4.299	-4.639	7002.3424
8	10.33	0.316	8.939	3087	4.387	-4.299	-4.639	7623.56967
9	10.33	0.315	8.975	3086	4.29	-4.299	-4.639	7903.01807
10	10.33	0.314	8.981	3085	4.282	-4.299	-4.639	7950.57872

For 5% significance level, there are 10 Potential Outliers
7.601, 7.824, 8.189, 8.403, 8.594, 8.613, 8.854, 8.939, 8.975, 8.981

For 1% Significance Level, there are 10 Potential Outliers
7.601, 7.824, 8.189, 8.403, 8.594, 8.613, 8.854, 8.939, 8.975, 8.981

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, lead)

Total N	845
Number NDs	178
Number Detects	667
Mean of Detects	2.727
SD of Detects	0.407
Number of data	667
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	2.727	0.406	5.438	1	6.673	-3.914	4.277	229.98176
2	2.723	0.393	4.248	2	3.881	-3.913	4.277	69.9653416
3	2.721	0.389	4.174	3	3.738	-3.913	4.277	64.9748323
4	2.719	0.385	4.007	4	3.347	-3.912	4.277	54.9816779
5	2.717	0.382	3.912	5	3.129	-3.912	4.277	49.9988497
6	2.715	0.379	3.912	6	3.155	-3.912	4.276	49.9988497
7	2.713	0.377	3.85	7	3.017	-3.911	4.275	46.9930632
8	2.712	0.375	3.829	8	2.983	-3.911	4.275	46.0164987
9	2.71	0.372	3.807	9	2.946	-3.91	4.274	45.0151905
10	2.708	0.37	3.807	10	2.968	-3.91	4.273	45.0151905

For 5% significance level, there are 10 Potential Outliers
5.438, 4.248, 4.174, 4.007, 3.912, 3.912, 3.85, 3.829, 3.807, 3.807

For 1% Significance Level, there is 1 Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, manganese)

Total N	3142
Number NDs	30
Number Detects	3112
Mean of Detects	6.557
SD of Detects	0.404
Number of data	3112
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	6.557	0.404	3.689	3112	7.097	-4.301	-4.64	40.0048221
2	6.558	0.401	9.158	1	6.484	-4.301	-4.64	9490.05797
3	6.557	0.398	8.763	2	5.536	-4.3	-4.64	6393.26262
4	6.557	0.396	4.382	3111	5.485	-4.3	-4.64	79.9978693
5	6.557	0.395	4.605	3109	4.948	-4.3	-4.64	99.9829828
6	6.558	0.393	4.605	3110	4.968	-4.3	-4.64	99.9829828
7	6.559	0.392	8.338	3	4.544	-4.3	-4.64	4179.72193
8	6.558	0.39	4.787	3108	4.536	-4.3	-4.64	119.941005
9	6.559	0.389	4.868	3107	4.346	-4.3	-4.64	130.060536
10	6.559	0.388	8.186	4	4.193	-4.3	-4.64	3590.33216

For 5% significance level, there are 10 Potential Outliers
3.689, 9.158, 8.763, 4.382, 4.605, 4.605, 8.338, 4.787, 4.868, 8.186

For 1% Significance Level, there are 10 Potential Outliers
3.689, 9.158, 8.763, 4.382, 4.605, 4.605, 8.338, 4.787, 4.868, 8.186

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, molybdenum)

Total N	850
Number NDs	537
Number Detects	313
Mean of Detects	1.118
SD of Detects	0.562
Number of data	313
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	1.118	0.561	3.367	1	4.007	3.732	4.102	28.9914222
2	1.111	0.548	3.219	2	3.844	3.732	4.102	25.0031046
3	1.104	0.536	2.996	3	3.529	3.731	4.101	20.0053552
4	1.098	0.526	2.944	4	3.51	3.731	4.101	18.9916612
5	1.092	0.516	2.833	5	3.373	3.73	4.1	16.9963735
6	1.087	0.507	2.708	6	3.196	3.729	4.1	14.999247
7	1.081	0.5	2.708	7	3.256	3.727	4.1	14.999247
8	1.076	0.492	2.708	8	3.319	3.726	4.1	14.999247
9	1.071	0.483	2.708	9	3.387	3.724	4.1	14.999247
10	1.065	0.475	2.708	10	3.458	3.723	4.1	14.999247

For 5% significance level, there are 2 Potential Outliers
3.367, 3.219

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, nickel)

Total N	846
Number NDs	93
Number Detects	753
Mean of Detects	2.594
SD of Detects	0.671
Number of data	753
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	2.594	0.671	6.109	1	5.242	-3.947	-4.301	449.888602
2	2.589	0.659	6.109	2	5.34	-3.947	-4.301	449.888602
3	2.585	0.647	5.333	3	4.248	-3.946	-4.3	207.058218
4	2.581	0.639	4.99	4	3.768	-3.946	-4.3	146.936423
5	2.578	0.634	4.804	5	3.513	-3.945	-4.3	121.997433
6	2.575	0.629	4.771	6	3.491	-3.945	-4.299	118.03722
7	2.572	0.624	4.745	7	3.481	-3.945	-4.299	115.007806
8	2.569	0.62	4.615	8	3.303	-3.944	-4.299	100.987829
9	2.566	0.615	4.522	9	3.178	-3.944	-4.298	92.019453
10	2.564	0.612	4.5	10	3.166	-3.944	-4.298	90.0171313

For 5% significance level, there are 10 Potential Outliers
6.109, 6.109, 5.333, 4.99, 4.804, 4.771, 4.745, 4.615, 4.522, 4.5

For 1% Significance Level, there are 10 Potential Outliers
6.109, 6.109, 5.333, 4.99, 4.804, 4.771, 4.745, 4.615, 4.522, 4.5

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, selenium)

Total N	853
Number NDs	589
Number Detects	264
Mean of Detects	0.331
SD of Detects	0.687
Number of data	264
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	0.331	0.686	-1.609	262	2.83	3.684	4.054	0.2000876
2	0.338	0.678	-1.609	263	2.874	3.684	4.054	0.2000876
3	0.346	0.668	-1.609	264	2.926	3.684	4.054	0.2000876
4	0.353	0.658	2.079	1	2.623	3.684	4.054	7.99646845
5	0.346	0.651	2.079	2	2.663	3.684	4.054	7.99646845
6	0.34	0.643	1.946	3	2.498	3.682	4.053	7.00062898
7	0.333	0.636	1.946	4	2.534	3.68	4.051	7.00062898
8	0.327	0.629	-1.204	252	2.432	3.678	4.05	0.29999184
9	0.333	0.623	-1.204	253	2.466	3.676	4.048	0.29999184
10	0.339	0.617	-1.204	254	2.501	3.674	4.047	0.29999184

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, silver)

Total N	827
Number NDs	25
Number Detects	802
Mean of Detects	-0.991
SD of Detects	0.68
Number of data	802
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	-0.991	0.68	2.96	1	5.811	-3.964	-4.318	19.2979718
2	-0.996	0.666	2.332	2	4.995	-3.964	-4.317	10.298518
3	-1	0.656	1.825	3	4.304	-3.963	-4.317	6.20279502
4	-1.004	0.649	1.504	4	3.864	-3.963	-4.317	4.49965173
5	-1.007	0.643	1.099	5	3.273	-3.963	-4.316	3.00116336
6	-1.01	0.639	0.956	6	3.074	-3.962	-4.316	2.60127055
7	-1.012	0.636	0.916	7	3.032	-3.962	-4.316	2.49927328
8	-1.014	0.633	0.875	8	2.987	-3.962	-4.315	2.39887529
9	-1.017	0.629	0.788	9	2.868	-3.961	-4.315	2.19899404
10	-1.019	0.627	0.788	10	2.885	-3.961	-4.315	2.19899404

For 5% significance level, there are 10 Potential Outliers
2.96, 2.332, 1.825, 1.504, 1.099, 0.956, 0.916, 0.875, 0.788, 0.788

For 1% Significance Level, there are 10 Potential Outliers
2.96, 2.332, 1.825, 1.504, 1.099, 0.956, 0.916, 0.875, 0.788, 0.788

Outlier Tests for Selected Variables excluding nondetects

Dixon's Outlier Test for meas_value_update (total, thallium)

Total N = 6
Number NDs = 0
Number Detects = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698
Note: NDs excluded from Outlier Test

1. Data Value 0.7 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.250

For 10% significance level, 0.7 is not an outlier.
For 5% significance level, 0.7 is not an outlier.
For 1% significance level, 0.7 is not an outlier.

2. Data Value 0.3 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.3 is not an outlier.
For 5% significance level, 0.3 is not an outlier.
For 1% significance level, 0.3 is not an outlier.

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, vanadium)

Total N	3129
Number NDs	75
Number Detects	3054
Mean of Detects	4.291
SD of Detects	0.461
Number of data	3054
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	4.291	0.461	6.985	1	5.839	-4.296	-4.636	1080.30642
2	4.29	0.459	6.507	2	4.832	-4.296	-4.636	669.813959
3	4.289	0.457	2.303	3052	4.345	-4.296	-4.636	10.0041499
4	4.29	0.456	2.303	3053	4.359	-4.296	-4.636	10.0041499
5	4.291	0.455	2.303	3054	4.374	-4.296	-4.636	10.0041499
6	4.291	0.453	6.194	3	4.2	-4.296	-4.636	489.801399
7	4.291	0.452	6.194	4	4.212	-4.296	-4.636	489.801399
8	4.29	0.451	5.953	5	3.69	-4.296	-4.636	384.906328
9	4.289	0.45	5.883	6	3.544	-4.296	-4.636	358.884281
10	4.289	0.449	5.858	7	3.495	-4.296	-4.636	350.023397

For 5% significance level, there are 10 Potential Outliers
6.985, 6.507, 2.303, 2.303, 2.303, 6.194, 6.194, 5.953, 5.883, 5.858

For 1% Significance Level, there are 10 Potential Outliers
6.985, 6.507, 2.303, 2.303, 2.303, 6.194, 6.194, 5.953, 5.883, 5.858

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, zinc)

Total N	847
Number NDs	0
Number Detects	847
Mean of Detects	3.63
SD of Detects	0.597
Number of data	847
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	3.63	0.596	7.409	1	6.336	-3.979	-4.332	1650.77475
2	3.626	0.583	6.532	2	4.988	-3.978	-4.332	686.77038
3	3.622	0.574	5.897	3	3.96	-3.978	-4.331	363.943996
4	3.619	0.569	5.858	4	3.931	-3.978	-4.331	350.023397
5	3.617	0.564	5.858	5	3.97	-3.977	-4.331	350.023397
6	3.614	0.56	1.609	845	3.583	-3.977	-4.33	4.99781092
7	3.616	0.556	1.609	846	3.613	-3.977	-4.33	4.99781092
8	3.619	0.552	1.609	847	3.643	-3.976	-4.33	4.99781092
9	3.621	0.547	5.617	6	3.645	-3.976	-4.329	275.062955
10	3.619	0.543	5.357	7	3.198	-3.976	-4.329	212.087728

For 5% significance level, there are 10 Potential Outliers
7.409, 6.532, 5.897, 5.858, 5.858, 1.609, 1.609, 1.609, 5.617, 5.357

For 1% Significance Level, there are 10 Potential Outliers
7.409, 6.532, 5.897, 5.858, 5.858, 1.609, 1.609, 1.609, 5.617, 5.357

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, arsenic) - 2 outliers excluded

General Statistics			
Total Number of Observations	699	Number of Distinct Observations	63
Minimum	0.8	First Quartile	2
Second Largest	18	Median	3
Maximum	19.15	Third Quartile	5
Mean	3.661	SD	3.103
Coefficient of Variation	0.848	Skewness	1.914
Mean of logged Data	1.006	SD of logged Data	0.753
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	1.744	d2max (for USL)	3.785
Normal GOF Test			
Shapiro Wilk Test Statistic	0.776	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.2	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0338	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	9.072	90% Percentile (z)	7.638
95% UPL (t)	8.775	95% Percentile (z)	8.765
95% USL	15.4	99% Percentile (z)	10.88
Gamma GOF Test			
A-D Test Statistic	17.53	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.167	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0363	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.861	k star (bias corrected MLE)	1.854
Theta hat (MLE)	1.967	Theta star (bias corrected MLE)	1.975
nu hat (MLE)	2601	nu star (bias corrected)	2592
MLE Mean (bias corrected)	3.661	MLE Sd (bias corrected)	2.689
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	8.783	90% Percentile	7.249
95% Hawkins Wixley (HW) Approx. Gamma UPL	8.884	95% Percentile	8.896
95% WH Approx. Gamma UTL with 95% Coverage	9.249	99% Percentile	12.57
95% HW Approx. Gamma UTL with 95% Coverage	9.392		
95% WH USL	23.54	95% HW USL	26.43
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.914	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.139	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0338	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	10.16	90% Percentile (z)	7.173
95% UPL (t)	9.454	95% Percentile (z)	9.43
95% USL	47.21	99% Percentile (z)	15.75
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	673	95% UTL with 95% Coverage	12
Approx, f used to compute achieved CC	1.312	Approximate Actual Confidence Coefficient achieved by UTL	0.933
		Approximate Sample Size needed to achieve specified CC	716
95% Percentile Bootstrap UTL with 95% Coverage	12	95% BCA Bootstrap UTL with 95% Coverage	11.1
95% UPL	11	90% Percentile	7.02
90% Chebyshev UPL	12.98	95% Percentile	11
95% Chebyshev UPL	17.2	99% Percentile	14.01
95% USL	19.15		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, beryllium) - 1 outlier excluded

General Statistics

Total Number of Observations	844	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	827	Number of Non-Detects	17
Number of Distinct Detects	16	Number of Distinct Non-Detects	2
Minimum Detect	0.5	Minimum Non-Detect	0.5
Maximum Detect	5.5	Maximum Non-Detect	1
Variance Detected	0.499	Percent Non-Detects	2.01%
Mean Detected	1.687	SD Detected	0.707
Mean of Detected Logged Data	0.43	SD of Detected Logged Data	0.448

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.903	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.154	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0311	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.663	KM SD	0.719
95% UTL95% Coverage	2.91	95% KM UPL (t)	2.847
90% KM Percentile (z)	2.584	95% KM Percentile (z)	2.845
99% KM Percentile (z)	3.335	95% KM USL	4.418

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.661	SD	0.722
95% UTL95% Coverage	2.914	95% UPL (t)	2.851
90% Percentile (z)	2.587	95% Percentile (z)	2.849
99% Percentile (z)	3.342	95% USL	4.43

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	21.82	Anderson-Darling GOF Test	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.156	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0329	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.572	k star (bias corrected MLE)	5.552
Theta hat (MLE)	0.303	Theta star (bias corrected MLE)	0.304
nu hat (MLE)	9216	nu star (bias corrected)	9183
MLE Mean (bias corrected)	1.687		
MLE Sd (bias corrected)	0.716	95% Percentile of Chisquare (2kstar)	19.82

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.298	Mean	1.664
Maximum	5.5	Median	1.5
SD	0.718	CV	0.432
k hat (MLE)	5.141	k star (bias corrected MLE)	5.123
Theta hat (MLE)	0.324	Theta star (bias corrected MLE)	0.325
nu hat (MLE)	8678	nu star (bias corrected)	8648
MLE Mean (bias corrected)	1.664	MLE Sd (bias corrected)	0.735
95% Percentile of Chisquare (2kstar)	18.65	90% Percentile	2.648
95% Percentile	3.028	99% Percentile	3.83

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.122	3.175	95% Approx. Gamma UPL	3.026	3.072
95% Gamma USL	6.096	6.569			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.663	SD (KM)	0.719
Variance (KM)	0.517	SE of Mean (KM)	0.0248
k hat (KM)	5.352	k star (KM)	5.334
nu hat (KM)	9035	nu star (KM)	9004
theta hat (KM)	0.311	theta star (KM)	0.312
80% gamma percentile (KM)	2.219	90% gamma percentile (KM)	2.626
95% gamma percentile (KM)	2.996	99% gamma percentile (KM)	3.776

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.122	3.175	95% Approx. Gamma UPL	3.026	3.072
95% KM Gamma Percentile	3.023	3.068	95% Gamma USL	6.101	6.573

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.903	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.185	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0311	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.665	Mean in Log Scale	0.411
SD in Original Scale	0.717	SD in Log Scale	0.466
95% UTL95% Coverage	3.381	95% BCA UTL95% Coverage	3
95% Bootstrap (%) UTL95% Coverage	3	95% UPL (t)	3.247
90% Percentile (z)	2.738	95% Percentile (z)	3.243
99% Percentile (z)	4.454	95% USL	8.983

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.408	95% KM UTL (Lognormal)95% Coverage	3.402
KM SD of Logged Data	0.471	95% KM UPL (Lognormal)	3.265
95% KM Percentile Lognormal (z)	3.261	95% KM USL (Lognormal)	9.137

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.661	Mean in Log Scale	0.403
SD in Original Scale	0.722	SD in Log Scale	0.486
95% UTL95% Coverage	3.475	95% UPL (t)	3.332
90% Percentile (z)	2.789	95% Percentile (z)	3.327
99% Percentile (z)	4.633	95% USL	9.637

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	811	95% UTL with95% Coverage	3
Approx, f used to compute achieved CC	1.255	Approximate Actual Confidence Coefficient achieved by UTL	0.919
Approximate Sample Size needed to achieve specified CC	877	95% UPL	3
95% USL	5.5	95% KM Chebyshev UPL	4.798

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, cadmium) - 1 outlier excluded

General Statistics

Total Number of Observations	67	Number of Missing Observations	0
Number of Distinct Observations	5		
Number of Detects	6	Number of Non-Detects	61
Number of Distinct Detects	4	Number of Distinct Non-Detects	1
Minimum Detect	0.2	Minimum Non-Detect	2
Maximum Detect	0.5	Maximum Non-Detect	2
Variance Detected	0.011	Percent Non-Detects	91.04%
Mean Detected	0.35	SD Detected	0.105
Mean of Detected Logged Data	-1.091	SD of Detected Logged Data	0.321

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.994	d2max (for USL)	3.068

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.96	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.183	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.325	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.35	KM SD	0.0957
95% UTL95% Coverage	0.541	95% KM UPL (t)	0.511
90% KM Percentile (z)	0.473	95% KM Percentile (z)	0.507
99% KM Percentile (z)	0.573	95% KM USL	0.644

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.942	SD	0.189
95% UTL95% Coverage	1.319	95% UPL (t)	1.26
90% Percentile (z)	1.184	95% Percentile (z)	1.253
99% Percentile (z)	1.382	95% USL	1.522

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.295	Anderson-Darling GOF Test	
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.218	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.45	k star (bias corrected MLE)	6.336
Theta hat (MLE)	0.0281	Theta star (bias corrected MLE)	0.0552
nu hat (MLE)	149.4	nu star (bias corrected)	76.04
MLE Mean (bias corrected)	0.35		
MLE Sd (bias corrected)	0.139	95% Percentile of Chisquare (2kstar)	21.93

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.117	Mean	0.354
Maximum	0.686	Median	0.344
SD	0.124	CV	0.35
k hat (MLE)	7.919	k star (bias corrected MLE)	7.575
Theta hat (MLE)	0.0448	Theta star (bias corrected MLE)	0.0468
nu hat (MLE)	1061	nu star (bias corrected)	1015
MLE Mean (bias corrected)	0.354	MLE Sd (bias corrected)	0.129
95% Percentile of Chisquare (2kstar)	25.19	90% Percentile	0.526
95% Percentile	0.589	99% Percentile	0.72

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.65	0.66	95% Approx. Gamma UPL	0.592	0.598
95% Gamma USL	0.876	0.908			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.35	SD (KM)	0.0957
Variance (KM)	0.00917	SE of Mean (KM)	0.0428
k hat (KM)	13.36	k star (KM)	12.78
nu hat (KM)	1791	nu star (KM)	1712
theta hat (KM)	0.0262	theta star (KM)	0.0274
80% gamma percentile (KM)	0.429	90% gamma percentile (KM)	0.48
95% gamma percentile (KM)	0.525	99% gamma percentile (KM)	0.617

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.574	0.58	95% Approx. Gamma UPL	0.532	0.536
95% KM Gamma Percentile	0.528	0.531	95% Gamma USL	0.736	0.754

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.941	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.207	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.325	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.36	Mean in Log Scale	-1.091
SD in Original Scale	0.136	SD in Log Scale	0.373
95% UTL95% Coverage	0.706	95% BCA UTL95% Coverage	0.688
95% Bootstrap (%) UTL95% Coverage	0.703	95% UPL (t)	0.629
90% Percentile (z)	0.542	95% Percentile (z)	0.62
99% Percentile (z)	0.8	95% USL	1.054

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.091	95% KM UTL (Lognormal)95% Coverage	0.602
KM SD of Logged Data	0.293	95% KM UPL (Lognormal)	0.549
95% KM Percentile Lognormal (z)	0.544	95% KM USL (Lognormal)	0.825

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.942	Mean in Log Scale	-0.0977
SD in Original Scale	0.189	SD in Log Scale	0.326
95% UTL95% Coverage	1.737	95% UPL (t)	1.568
90% Percentile (z)	1.377	95% Percentile (z)	1.55
99% Percentile (z)	1.936	95% USL	2.465

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	66	95% UTL with95% Coverage	2
Approx, f used to compute achieved CC	1.737	Approximate Actual Confidence Coefficient achieved by UTL	0.854
Approximate Sample Size needed to achieve specified CC	93	95% UPL	2
95% USL	2	95% KM Chebyshev UPL	0.77

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, chromium) - 5 outliers excluded

General Statistics			
Total Number of Observations	845	Number of Distinct Observations	86
Minimum	5	First Quartile	20
Second Largest	550	Median	30
Maximum	550	Third Quartile	55
Mean	48.11	SD	52.84
Coefficient of Variation	1.098	Skewness	4.599
Mean of logged Data	3.552	SD of logged Data	0.753
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834
Normal GOF Test			
Shapiro Wilk Test Statistic	0.603	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.218	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	139.8	90% Percentile (z)	115.8
95% UPL (t)	135.2	95% Percentile (z)	135
95% USL	250.7	99% Percentile (z)	171
Gamma GOF Test			
A-D Test Statistic	21.87	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.77	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.153	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0329	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.704	k star (bias corrected MLE)	1.699
Theta hat (MLE)	28.23	Theta star (bias corrected MLE)	28.32
nu hat (MLE)	2880	nu star (bias corrected)	2871
MLE Mean (bias corrected)	48.11	MLE Sd (bias corrected)	36.91
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	116.8	90% Percentile	97.26
95% Hawkins Wixley (HW) Approx. Gamma UPL	116.7	95% Percentile	120.3
95% WH Approx. Gamma UTL with 95% Coverage	122.6	99% Percentile	171.8
95% HW Approx. Gamma UTL with 95% Coverage	122.9		
95% WH USL	327.8	95% HW USL	362.5
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.964	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.104	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	128.9	90% Percentile (z)	91.63
95% UPL (t)	120.7	95% Percentile (z)	120.5
95% USL	627	99% Percentile (z)	201.4
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	812	95% UTL with 95% Coverage	140
Approx, f used to compute achieved CC	1.257	Approximate Actual Confidence Coefficient achieved by UTL	0.92
		Approximate Sample Size needed to achieve specified CC	877
95% Percentile Bootstrap UTL with 95% Coverage	140	95% BCA Bootstrap UTL with 95% Coverage	120
95% UPL	123.5	90% Percentile	95
90% Chebyshev UPL	206.7	95% Percentile	120
95% Chebyshev UPL	278.6	99% Percentile	262.8
95% USL	550		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, cobalt) - 1 outlier excluded

General Statistics

Total Number of Observations	846	Number of Missing Observations	0
Number of Distinct Observations	33		
Number of Detects	641	Number of Non-Detects	205
Number of Distinct Detects	33	Number of Distinct Non-Detects	1
Minimum Detect	2	Minimum Non-Detect	5
Maximum Detect	45	Maximum Non-Detect	5
Variance Detected	34.21	Percent Non-Detects	24.23%
Mean Detected	9.837	SD Detected	5.849
Mean of Detected Logged Data	2.151	SD of Detected Logged Data	0.496

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.785	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.207	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0353	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	8.181	KM SD	5.891
95% UTL95% Coverage	18.4	95% KM UPL (t)	17.89
90% KM Percentile (z)	15.73	95% KM Percentile (z)	17.87
99% KM Percentile (z)	21.89	95% KM USL	30.77

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	8.059	SD	5.984
95% UTL95% Coverage	18.44	95% UPL (t)	17.92
90% Percentile (z)	15.73	95% Percentile (z)	17.9
99% Percentile (z)	21.98	95% USL	31

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	22.43	Anderson-Darling GOF Test	
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.163	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0373	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.868	k star (bias corrected MLE)	3.85
Theta hat (MLE)	2.544	Theta star (bias corrected MLE)	2.555
nu hat (MLE)	4958	nu star (bias corrected)	4936
MLE Mean (bias corrected)	9.837		
MLE Sd (bias corrected)	5.013	95% Percentile of Chisquare (2kstar)	15.08

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	7.676
Maximum	45	Median	7
SD	6.383	CV	0.831
k hat (MLE)	0.75	k star (bias corrected MLE)	0.748
Theta hat (MLE)	10.23	Theta star (bias corrected MLE)	10.26
nu hat (MLE)	1270	nu star (bias corrected)	1266
MLE Mean (bias corrected)	7.676	MLE Sd (bias corrected)	8.873
95% Percentile of Chisquare (2kstar)	4.974	90% Percentile	18.97
95% Percentile	25.51	99% Percentile	41.03

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	25.6	30.09	95% Approx. Gamma UPL	24.08	27.98
95% Gamma USL	84.35	128.2			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	8.181	SD (KM)	5.891
Variance (KM)	34.71	SE of Mean (KM)	0.266
k hat (KM)	1.928	k star (KM)	1.922
nu hat (KM)	3263	nu star (KM)	3252
theta hat (KM)	4.242	theta star (KM)	4.256
80% gamma percentile (KM)	12.3	90% gamma percentile (KM)	16.06
95% gamma percentile (KM)	19.65	99% gamma percentile (KM)	27.63

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	18.92	19.22	95% Approx. Gamma UPL	18.14	18.37
95% KM Gamma Percentile	18.11	18.35	95% Gamma USL	45.39	50.36

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.903	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.158	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0353	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	8.161	Mean in Log Scale	1.879
SD in Original Scale	5.905	SD in Log Scale	0.666
95% UTL95% Coverage	20.77	95% BCA UTL95% Coverage	20
95% Bootstrap (%) UTL95% Coverage	22	95% UPL (t)	19.6
90% Percentile (z)	15.36	95% Percentile (z)	19.57
99% Percentile (z)	30.8	95% USL	84.06

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.882	95% KM UTL (Lognormal)95% Coverage	20.8
KM SD of Logged Data	0.665	95% KM UPL (Lognormal)	19.63
95% KM Percentile Lognormal (z)	19.6	95% KM USL (Lognormal)	83.99

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	8.059	Mean in Log Scale	1.852
SD in Original Scale	5.984	SD in Log Scale	0.683
95% UTL95% Coverage	20.84	95% UPL (t)	19.64
90% Percentile (z)	15.29	95% Percentile (z)	19.6
99% Percentile (z)	31.22	95% USL	87.43

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	813	95% UTL with95% Coverage	22
Approx, f used to compute achieved CC	1.259	Approximate Actual Confidence Coefficient achieved by UTL	0.921
Approximate Sample Size needed to achieve specified CC	877	95% UPL	20
95% USL	45	95% KM Chebyshev UPL	33.87

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, lead) - 1 outlier excluded

General Statistics

Total Number of Observations	844	Number of Missing Observations	0
Number of Distinct Observations	40		
Number of Detects	666	Number of Non-Detects	178
Number of Distinct Detects	40	Number of Distinct Non-Detects	1
Minimum Detect	7	Minimum Non-Detect	10
Maximum Detect	70	Maximum Non-Detect	10
Variance Detected	58.94	Percent Non-Detects	21.09%
Mean Detected	16.56	SD Detected	7.677
Mean of Detected Logged Data	2.723	SD of Detected Logged Data	0.393

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.782	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.228	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0347	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	14.55	KM SD	7.852
95% UTL95% Coverage	28.16	95% KM UPL (t)	27.48
90% KM Percentile (z)	24.61	95% KM Percentile (z)	27.46
99% KM Percentile (z)	32.81	95% KM USL	44.65

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	14.12	SD	8.292
95% UTL95% Coverage	28.51	95% UPL (t)	27.79
90% Percentile (z)	24.75	95% Percentile (z)	27.76
99% Percentile (z)	33.41	95% USL	45.91

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	29.53	Anderson-Darling GOF Test	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.202	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0366	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics on Detected Data Only

k hat (MLE)	6.128	k star (bias corrected MLE)	6.101
Theta hat (MLE)	2.703	Theta star (bias corrected MLE)	2.715
nu hat (MLE)	8162	nu star (bias corrected)	8127
MLE Mean (bias corrected)	16.56		
MLE Sd (bias corrected)	6.705	95% Percentile of Chisquare (2kstar)	21.3

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	13.86
Maximum	70	Median	15
SD	8.648	CV	0.624
k hat (MLE)	1.685	k star (bias corrected MLE)	1.68
Theta hat (MLE)	8.225	Theta star (bias corrected MLE)	8.25
nu hat (MLE)	2844	nu star (bias corrected)	2835
MLE Mean (bias corrected)	13.86	MLE Sd (bias corrected)	10.69
95% Percentile of Chisquare (2kstar)	8.429	90% Percentile	28.1
95% Percentile	34.77	99% Percentile	49.74

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	35.02	38.31	95% Approx. Gamma UPL	33.44	36.35
95% Gamma USL	89.75	114.8			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	14.55	SD (KM)	7.852
Variance (KM)	61.65	SE of Mean (KM)	0.27
k hat (KM)	3.431	k star (KM)	3.42
nu hat (KM)	5792	nu star (KM)	5773
theta hat (KM)	4.239	theta star (KM)	4.253
80% gamma percentile (KM)	20.43	90% gamma percentile (KM)	25.09
95% gamma percentile (KM)	29.42	99% gamma percentile (KM)	38.73

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	28.35	28.51	95% Approx. Gamma UPL	27.42	27.53
95% KM Gamma Percentile	27.39	27.5	95% Gamma USL	57.63	61.14

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.869	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.215	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0347	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	14.44	Mean in Log Scale	2.539
SD in Original Scale	7.982	SD in Log Scale	0.511
95% UTL95% Coverage	30.71	95% BCA UTL95% Coverage	30
95% Bootstrap (%) UTL95% Coverage	30	95% UPL (t)	29.38
90% Percentile (z)	24.37	95% Percentile (z)	29.34
99% Percentile (z)	41.55	95% USL	89.7

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.559	95% KM UTL (Lognormal)95% Coverage	29.28
KM SD of Logged Data	0.471	95% KM UPL (Lognormal)	28.11
95% KM Percentile Lognormal (z)	28.07	95% KM USL (Lognormal)	78.78

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	14.12	Mean in Log Scale	2.488
SD in Original Scale	8.292	SD in Log Scale	0.573
95% UTL95% Coverage	32.54	95% UPL (t)	30.96
90% Percentile (z)	25.1	95% Percentile (z)	30.91
99% Percentile (z)	45.69	95% USL	108.4

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	811	95% UTL with95% Coverage	30
Approx, f used to compute achieved CC	1.255	Approximate Actual Confidence Coefficient achieved by UTL	0.919
Approximate Sample Size needed to achieve specified CC	877	95% UPL	30
95% USL	70	95% KM Chebyshev UPL	48.79

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, nickel) - 2 outliers excluded

General Statistics

Total Number of Observations	844	Number of Missing Observations	0
Number of Distinct Observations	65		
Number of Detects	751	Number of Non-Detects	93
Number of Distinct Detects	64	Number of Distinct Non-Detects	2
Minimum Detect	5	Minimum Non-Detect	3
Maximum Detect	207	Maximum Non-Detect	5
Variance Detected	279.5	Percent Non-Detects	11.02%
Mean Detected	16.97	SD Detected	16.72
Mean of Detected Logged Data	2.585	SD of Detected Logged Data	0.647

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.601	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.237	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0326	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	15.43	KM SD	16.36
95% UTL95% Coverage	43.8	95% KM UPL (t)	42.38
90% KM Percentile (z)	36.39	95% KM Percentile (z)	42.33
99% KM Percentile (z)	53.48	95% KM USL	78.13

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	15.37	SD	16.41
95% UTL95% Coverage	43.83	95% UPL (t)	42.41
90% Percentile (z)	36.4	95% Percentile (z)	42.36
99% Percentile (z)	53.55	95% USL	78.28

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	18.52	Anderson-Darling GOF Test	
5% A-D Critical Value	0.766	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.136	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.035	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics on Detected Data Only

k hat (MLE)	2.178	k star (bias corrected MLE)	2.17
Theta hat (MLE)	7.791	Theta star (bias corrected MLE)	7.819
nu hat (MLE)	3271	nu star (bias corrected)	3260
MLE Mean (bias corrected)	16.97		
MLE Sd (bias corrected)	11.52	95% Percentile of Chisquare (2kstar)	10.03

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	15.1
Maximum	207	Median	12
SD	16.64	CV	1.102
k hat (MLE)	0.661	k star (bias corrected MLE)	0.659
Theta hat (MLE)	22.86	Theta star (bias corrected MLE)	22.91
nu hat (MLE)	1115	nu star (bias corrected)	1112
MLE Mean (bias corrected)	15.1	MLE Sd (bias corrected)	18.6
95% Percentile of Chisquare (2kstar)	4.585	90% Percentile	38.44
95% Percentile	52.53	99% Percentile	86.32

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	50.92	60.71	95% Approx. Gamma UPL	47.84	56.32
95% Gamma USL	171.1	267.5			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	15.43	SD (KM)	16.36
Variance (KM)	267.5	SE of Mean (KM)	0.563
k hat (KM)	0.89	k star (KM)	0.888
nu hat (KM)	1502	nu star (KM)	1498
theta hat (KM)	17.34	theta star (KM)	17.38
80% gamma percentile (KM)	25.06	90% gamma percentile (KM)	36.58
95% gamma percentile (KM)	48.22	99% gamma percentile (KM)	75.49

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	39.2	39.53	95% Approx. Gamma UPL	37.36	37.54
95% KM Gamma Percentile	37.3	37.48	95% Gamma USL	104.1	116.2

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.94	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0808	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0326	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	15.45	Mean in Log Scale	2.422
SD in Original Scale	16.35	SD in Log Scale	0.772
95% UTL95% Coverage	42.99	95% BCA UTL95% Coverage	45
95% Bootstrap (%) UTL95% Coverage	45	95% UPL (t)	40.2
90% Percentile (z)	30.31	95% Percentile (z)	40.11
99% Percentile (z)	67.88	95% USL	217.2

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.421	95% KM UTL (Lognormal)95% Coverage	42.58
KM SD of Logged Data	0.767	95% KM UPL (Lognormal)	39.83
95% KM Percentile Lognormal (z)	39.75	95% KM USL (Lognormal)	213

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	15.37	Mean in Log Scale	2.4
SD in Original Scale	16.41	SD in Log Scale	0.805
95% UTL95% Coverage	44.52	95% UPL (t)	41.52
90% Percentile (z)	30.92	95% Percentile (z)	41.42
99% Percentile (z)	71.69	95% USL	241.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	811	95% UTL with95% Coverage	45
Approx, f used to compute achieved CC	1.255	Approximate Actual Confidence Coefficient achieved by UTL	0.919
Approximate Sample Size needed to achieve specified CC	877	95% UPL	40
95% USL	207	95% KM Chebyshev UPL	86.77

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, silver) - 4 outliers excluded

General Statistics

Total Number of Observations	823	Number of Missing Observations	0
Number of Distinct Observations	25		
Number of Detects	798	Number of Non-Detects	25
Number of Distinct Detects	25	Number of Distinct Non-Detects	2
Minimum Detect	0.1	Minimum Non-Detect	0.1
Maximum Detect	3	Maximum Non-Detect	1
Variance Detected	0.112	Percent Non-Detects	3.04%
Mean Detected	0.449	SD Detected	0.335
Mean of Detected Logged Data	-1.007	SD of Detected Logged Data	0.643

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.736	d2max (for USL)	3.827

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.744	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.199	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0317	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.441	KM SD	0.334
95% UTL95% Coverage	1.02	95% KM UPL (t)	0.991
90% KM Percentile (z)	0.869	95% KM Percentile (z)	0.99
99% KM Percentile (z)	1.218	95% KM USL	1.719

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.44	SD	0.335
95% UTL95% Coverage	1.022	95% UPL (t)	0.993
90% Percentile (z)	0.87	95% Percentile (z)	0.992
99% Percentile (z)	1.22	95% USL	1.723

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	12.29	Anderson-Darling GOF Test	
5% A-D Critical Value	0.764	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.12	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0338	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics on Detected Data Only

k hat (MLE)	2.573	k star (bias corrected MLE)	2.564
Theta hat (MLE)	0.175	Theta star (bias corrected MLE)	0.175
nu hat (MLE)	4106	nu star (bias corrected)	4092
MLE Mean (bias corrected)	0.449		
MLE Sd (bias corrected)	0.281	95% Percentile of Chisquare (2kstar)	11.27

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.439
Maximum	3	Median	0.4
SD	0.337	CV	0.768
k hat (MLE)	2.026	k star (bias corrected MLE)	2.019
Theta hat (MLE)	0.217	Theta star (bias corrected MLE)	0.217
nu hat (MLE)	3334	nu star (bias corrected)	3323
MLE Mean (bias corrected)	0.439	MLE Sd (bias corrected)	0.309
95% Percentile of Chisquare (2kstar)	9.549	90% Percentile	0.851
95% Percentile	1.037	99% Percentile	1.45

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.068	1.111	95% Approx. Gamma UPL	1.021	1.057
95% Gamma USL	2.669	3.11			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.441	SD (KM)	0.334
Variance (KM)	0.112	SE of Mean (KM)	0.0117
k hat (KM)	1.741	k star (KM)	1.735
nu hat (KM)	2865	nu star (KM)	2856
theta hat (KM)	0.253	theta star (KM)	0.254
80% gamma percentile (KM)	0.671	90% gamma percentile (KM)	0.887
95% gamma percentile (KM)	1.094	99% gamma percentile (KM)	1.559

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.015	1.031	95% Approx. Gamma UPL	0.973	0.985
95% KM Gamma Percentile	0.971	0.984	95% Gamma USL	2.419	2.679

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.941	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.152	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0317	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.44	Mean in Log Scale	-1.045
SD in Original Scale	0.335	SD in Log Scale	0.68
95% UTL95% Coverage	1.144	95% BCA UTL95% Coverage	1.1
95% Bootstrap (%) UTL95% Coverage	1.1	95% UPL (t)	1.078
90% Percentile (z)	0.841	95% Percentile (z)	1.076
99% Percentile (z)	1.71	95% USL	4.742

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.038	95% KM UTL (Lognormal)95% Coverage	1.122
KM SD of Logged Data	0.664	95% KM UPL (Lognormal)	1.058
95% KM Percentile Lognormal (z)	1.056	95% KM USL (Lognormal)	4.501

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.44	Mean in Log Scale	-1.051
SD in Original Scale	0.335	SD in Log Scale	0.701
95% UTL95% Coverage	1.181	95% UPL (t)	1.11
90% Percentile (z)	0.859	95% Percentile (z)	1.108
99% Percentile (z)	1.787	95% USL	5.116

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	791	95% UTL with95% Coverage	1.1
Approx, f used to compute achieved CC	1.262	Approximate Actual Confidence Coefficient achieved by UTL	0.921
Approximate Sample Size needed to achieve specified CC	854	95% UPL	1
95% USL	3	95% KM Chebyshev UPL	1.898

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, vanadium) - 2 outliers excluded

General Statistics

Total Number of Observations	3127	Number of Missing Observations	0
Number of Distinct Observations	190		
Number of Detects	3052	Number of Non-Detects	75
Number of Distinct Detects	190	Number of Distinct Non-Detects	1
Minimum Detect	10	Minimum Non-Detect	10
Maximum Detect	490	Maximum Non-Detect	10
Variance Detected	1617	Percent Non-Detects	2.40%
Mean Detected	80.96	SD Detected	40.21
Mean of Detected Logged Data	4.289	SD of Detected Logged Data	0.457

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.691	d2max (for USL)	4.153

Normal GOF Test on Detects Only

Lilliefors Test Statistic	0.14	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0162	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	79.26	KM SD	41.18
95% UTL95% Coverage	148.9	95% KM UPL (t)	147
90% KM Percentile (z)	132	95% KM Percentile (z)	147
99% KM Percentile (z)	175.1	95% KM USL	250.3

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	79.14	SD	41.39
95% UTL95% Coverage	149.1	95% UPL (t)	147.3
90% Percentile (z)	132.2	95% Percentile (z)	147.2
99% Percentile (z)	175.4	95% USL	251.1

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	17.17	Anderson-Darling GOF Test	
5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0809	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0182	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.935	k star (bias corrected MLE)	4.931
Theta hat (MLE)	16.4	Theta star (bias corrected MLE)	16.42
nu hat (MLE)	30125	nu star (bias corrected)	30097
MLE Mean (bias corrected)	80.96		
MLE Sd (bias corrected)	36.46	95% Percentile of Chisquare (2kstar)	18.12

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	79.32
Maximum	490	Median	70
SD	41.09	CV	0.518
k hat (MLE)	3.998	k star (bias corrected MLE)	3.995
Theta hat (MLE)	19.84	Theta star (bias corrected MLE)	19.86
nu hat (MLE)	25005	nu star (bias corrected)	24982
MLE Mean (bias corrected)	79.32	MLE Sd (bias corrected)	39.69
95% Percentile of Chisquare (2kstar)	15.49	90% Percentile	132.5
95% Percentile	153.8	99% Percentile	199.3

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	155.5	158.6	95% Approx. Gamma UPL	152.8	155.6
95% Gamma USL	361.5	400.2			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	79.26	SD (KM)	41.18
Variance (KM)	1696	SE of Mean (KM)	0.737
k hat (KM)	3.705	k star (KM)	3.701
nu hat (KM)	23169	nu star (KM)	23148
theta hat (KM)	21.39	theta star (KM)	21.41
80% gamma percentile (KM)	110.3	90% gamma percentile (KM)	134.5
95% gamma percentile (KM)	156.9	99% gamma percentile (KM)	204.8

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	156.1	159.1	95% Approx. Gamma UPL	153.3	156
95% KM Gamma Percentile	153.2	156	95% Gamma USL	364.4	403.1

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0653	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0162	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	79.57	Mean in Log Scale	4.261
SD in Original Scale	40.7	SD in Log Scale	0.486
95% UTL95% Coverage	161.2	95% BCA UTL95% Coverage	157
95% Bootstrap (%) UTL95% Coverage	160	95% UPL (t)	157.7
90% Percentile (z)	132.2	95% Percentile (z)	157.7
99% Percentile (z)	219.6	95% USL	533.4

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	4.242	95% KM UTL (Lognormal)95% Coverage	174.5
KM SD of Logged Data	0.544	95% KM UPL (Lognormal)	170.3
95% KM Percentile Lognormal (z)	170.2	95% KM USL (Lognormal)	667

Background Statistics for Data Sets excluding outliers with Non-Detects

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	79.14	Mean in Log Scale	4.225
SD in Original Scale	41.39	SD in Log Scale	0.61
95% UTL95% Coverage	191.8	95% UPL (t)	186.6
90% Percentile (z)	149.4	95% Percentile (z)	186.5
99% Percentile (z)	282.7	95% USL	861.8

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	2991	95% UTL with95% Coverage	160
Approx, f used to compute achieved CC	1.149	Approximate Actual Confidence Coefficient achieved by UTL	0.951
Approximate Sample Size needed to achieve specified CC	3126	95% UPL	151.6
95% USL	490	95% KM Chebyshev UPL	258.8

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, zinc) - 2 outliers excluded

General Statistics			
Total Number of Observations	845	Number of Distinct Observations	102
Minimum	5	First Quartile	27
Second Largest	350	Median	38
Maximum	364	Third Quartile	53
Mean	44.4	SD	32.22
Coefficient of Variation	0.726	Skewness	4.484
Mean of logged Data	3.622	SD of logged Data	0.574
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834
Normal GOF Test			
Shapiro Wilk Test Statistic	0.696	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.156	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	100.3	90% Percentile (z)	85.69
95% UPL (t)	97.49	95% Percentile (z)	97.4
95% USL	167.9	99% Percentile (z)	119.4
Gamma GOF Test			
A-D Test Statistic	5.233	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.761	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0695	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0326	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	3.076	k star (bias corrected MLE)	3.066
Theta hat (MLE)	14.44	Theta star (bias corrected MLE)	14.48
nu hat (MLE)	5199	nu star (bias corrected)	5181
MLE Mean (bias corrected)	44.4	MLE Sd (bias corrected)	25.36
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	91.63	90% Percentile	78.41
95% Hawkins Wixley (HW) Approx. Gamma UPL	92.19	95% Percentile	92.61
95% WH Approx. Gamma UTL with 95% Coverage	95.22	99% Percentile	123.4
95% HW Approx. Gamma UTL with 95% Coverage	96.01		
95% WH USL	212.8	95% HW USL	230
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.983	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.128	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0461	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	101.3	90% Percentile (z)	78.12
95% UPL (t)	96.4	95% Percentile (z)	96.25
95% USL	338.5	99% Percentile (z)	142.4
Nonparametric Distribution Free Background Statistics			
Data appear Approximate Lognormal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	812	95% UTL with 95% Coverage	98
Approx, f used to compute achieved CC	1.257	Approximate Actual Confidence Coefficient achieved by UTL	0.92
		Approximate Sample Size needed to achieve specified CC	877
95% Percentile Bootstrap UTL with 95% Coverage	98	95% BCA Bootstrap UTL with 95% Coverage	98
95% UPL	93.7	90% Percentile	75
90% Chebyshev UPL	141.1	95% Percentile	92.8
95% Chebyshev UPL	184.9	99% Percentile	157
95% USL	364		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Attachment C-2

ProUCL Output and QQ-Plots for Partial Digestion Results

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, aluminum)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	49
Minimum	9110	First Quartile	14550
Second Largest	38200	Median	20100
Maximum	44100	Third Quartile	25625
Mean	20568	SD	7520
Coefficient of Variation	0.366	Skewness	0.8
Mean of logged Data	9.868	SD of logged Data	0.362
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.942	Normal GOF Test	
5% Shapiro Wilk P Value	0.0221	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.125	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	35976	90% Percentile (z)	30205
95% UPL (t)	33286	95% Percentile (z)	32937
95% USL	42918	99% Percentile (z)	38061
Gamma GOF Test			
A-D Test Statistic	0.445	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.751	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0962	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	7.98	k star (bias corrected MLE)	7.532
Theta hat (MLE)	2578	Theta star (bias corrected MLE)	2731
nu hat (MLE)	829.9	nu star (bias corrected)	783.4
MLE Mean (bias corrected)	20568	MLE Sd (bias corrected)	7494
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	34447	90% Percentile	30566
95% Hawkins Wixley (HW) Approx. Gamma UPL	34688	95% Percentile	34243
95% WH Approx. Gamma UTL with 95% Coverage	38293	99% Percentile	41875
95% HW Approx. Gamma UTL with 95% Coverage	38757		
95% WH USL	49516	95% HW USL	50910
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.974	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.502	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0931	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	40529	90% Percentile (z)	30692
95% UPL (t)	35603	95% Percentile (z)	35009
95% USL	56623	99% Percentile (z)	44811
Nonparametric Distribution Free Background Statistics			
Data appear Gamma Distributed at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	38200
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	40855	95% BCA Bootstrap UTL with 95% Coverage	38200
95% UPL	34625	90% Percentile	29900
90% Chebyshev UPL	43343	95% Percentile	32425
95% Chebyshev UPL	53659	99% Percentile	41091
95% USL	44100		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, antimony)

General Statistics			
Total Number of Observations	6	Number of Distinct Observations	6
Minimum	0.17	First Quartile	0.195
Second Largest	0.27	Median	0.235
Maximum	0.287	Third Quartile	0.268
Mean	0.231	SD	0.0475
Coefficient of Variation	0.206	Skewness	-0.147
Mean of logged Data	-1.483	SD of logged Data	0.212
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	3.708	d2max (for USL)	1.822
Normal GOF Test			
Shapiro Wilk Test Statistic	0.918	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.228	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	0.407	90% Percentile (z)	0.292
95% UPL (t)	0.335	95% Percentile (z)	0.309
95% USL	0.318	99% Percentile (z)	0.342
Gamma GOF Test			
A-D Test Statistic	0.356	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.697	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.256	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	27.43	k star (bias corrected MLE)	13.83
Theta hat (MLE)	0.00843	Theta star (bias corrected MLE)	0.0167
nu hat (MLE)	329.1	nu star (bias corrected)	165.9
MLE Mean (bias corrected)	0.231	MLE Sd (bias corrected)	0.0622
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	0.349	90% Percentile	0.313
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.352	95% Percentile	0.342
95% WH Approx. Gamma UTL with 95% Coverage	0.456	99% Percentile	0.4
95% HW Approx. Gamma UTL with 95% Coverage	0.465		
95% WH USL	0.327	95% HW USL	0.329
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.916	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.24	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	0.498	90% Percentile (z)	0.298
95% UPL (t)	0.36	95% Percentile (z)	0.321
95% USL	0.334	99% Percentile (z)	0.371
Nonparametric Distribution Free Background Statistics			
Data appear Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	6	95% UTL with 95% Coverage	0.287
Approx, f used to compute achieved CC	0.316	Approximate Actual Confidence Coefficient achieved by UTl	0.265
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.287	95% BCA Bootstrap UTL with 95% Coverage	0.287
95% UPL	0.287	90% Percentile	0.278
90% Chebyshev UPL	0.385	95% Percentile	0.283
95% Chebyshev UPL	0.455	99% Percentile	0.286
95% USL	0.287		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, arsenic)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	45
Minimum	1.7	First Quartile	3.475
Second Largest	98.4	Median	5.44
Maximum	182	Third Quartile	10.48
Mean	14.84	SD	29.58
Coefficient of Variation	1.993	Skewness	4.351
Mean of logged Data	1.959	SD of logged Data	1.03
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.451	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.328	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	75.45	90% Percentile (z)	52.75
95% UPL (t)	64.87	95% Percentile (z)	63.49
95% USL	102.8	99% Percentile (z)	83.65
Gamma GOF Test			
A-D Test Statistic	4.276	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.79	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.258	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0.803	k star (bias corrected MLE)	0.77
Theta hat (MLE)	18.47	Theta star (bias corrected MLE)	19.28
nu hat (MLE)	83.56	nu star (bias corrected)	80.07
MLE Mean (bias corrected)	14.84	MLE Sd (bias corrected)	16.92
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	44.65	90% Percentile	36.42
95% Hawkins Wixley (HW) Approx. Gamma UPL	43.06	95% Percentile	48.82
95% WH Approx. Gamma UTL with 95% Coverage	57.69	99% Percentile	78.17
95% HW Approx. Gamma UTL with 95% Coverage	56.84		
95% WH USL	102.5	95% HW USL	107.6
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.899	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	1.64E-04	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.161	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	58.52	90% Percentile (z)	26.55
95% UPL (t)	40.48	95% Percentile (z)	38.59
95% USL	151.4	99% Percentile (z)	77.85
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	98.4
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	136	95% BCA Bootstrap UTL with 95% Coverage	126.2
95% UPL	86.83	90% Percentile	21.34
90% Chebyshev UPL	104.4	95% Percentile	58.13
95% Chebyshev UPL	145	99% Percentile	139.4
95% USL	182		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, barium)

General Statistics			
Total Number of Observations	48	Number of Distinct Observations	43
Minimum	89.7	First Quartile	115.8
Second Largest	414	Median	161.5
Maximum	432	Third Quartile	201.3
Mean	182.5	SD	86.02
Coefficient of Variation	0.471	Skewness	1.371
Mean of logged Data	5.116	SD of logged Data	0.417
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
Normal GOF Test			
Shapiro Wilk Test Statistic	0.839	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.181	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	360.5	90% Percentile (z)	292.8
95% UPL (t)	328.4	95% Percentile (z)	324
95% USL	435.5	99% Percentile (z)	382.7
Gamma GOF Test			
A-D Test Statistic	1.244	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.124	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.632	k star (bias corrected MLE)	5.294
Theta hat (MLE)	32.41	Theta star (bias corrected MLE)	34.48
nu hat (MLE)	540.7	nu star (bias corrected)	508.2
MLE Mean (bias corrected)	182.5	MLE Sd (bias corrected)	79.34
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	331.6	90% Percentile	288.7
95% Hawkins Wixley (HW) Approx. Gamma UPL	332.8	95% Percentile	329.5
95% WH Approx. Gamma UTL with 95% Coverage	376.7	99% Percentile	415.6
95% HW Approx. Gamma UTL with 95% Coverage	380.4		
95% WH USL	497.7	95% HW USL	511.3
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.933	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0945	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data appear Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	394.9	90% Percentile (z)	284.4
95% UPL (t)	338	95% Percentile (z)	330.9
95% USL	568.3	99% Percentile (z)	439.8
Nonparametric Distribution Free Background Statistics			
Data appear Approximate Gamma Distribution at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	47	95% UTL with 95% Coverage	414
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTl	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	425.7	95% BCA Bootstrap UTL with 95% Coverage	414
95% UPL	388.8	90% Percentile	325.8
90% Chebyshev UPL	443.3	95% Percentile	352.4
95% Chebyshev UPL	561.4	99% Percentile	423.5
95% USL	432		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, beryllium)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	34
Minimum	0.34	First Quartile	0.765
Second Largest	2	Median	1
Maximum	3	Third Quartile	1.2
Mean	1.033	SD	0.482
Coefficient of Variation	0.467	Skewness	1.527
Mean of logged Data	-0.0671	SD of logged Data	0.455
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.901	Normal GOF Test	
5% Shapiro Wilk P Value	2.05E-04	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.156	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	2.021	90% Percentile (z)	1.651
95% UPL (t)	1.848	95% Percentile (z)	1.826
95% USL	2.466	99% Percentile (z)	2.154
Gamma GOF Test			
A-D Test Statistic	0.374	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0968	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.2	k star (bias corrected MLE)	4.913
Theta hat (MLE)	0.199	Theta star (bias corrected MLE)	0.21
nu hat (MLE)	540.8	nu star (bias corrected)	511
MLE Mean (bias corrected)	1.033	MLE Sd (bias corrected)	0.466
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	1.911	90% Percentile	1.656
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.931	95% Percentile	1.899
95% WH Approx. Gamma UTL with 95% Coverage	2.168	99% Percentile	2.411
95% HW Approx. Gamma UTL with 95% Coverage	2.206		
95% WH USL	2.935	95% HW USL	3.055
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.976	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.567	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0846	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	2.374	90% Percentile (z)	1.675
95% UPL (t)	2.018	95% Percentile (z)	1.975
95% USL	3.612	99% Percentile (z)	2.693
Nonparametric Distribution Free Background Statistics			
Data appear Gamma Distributed at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	2
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	2.45	95% BCA Bootstrap UTL with 95% Coverage	2
95% UPL	1.87	90% Percentile	1.695
90% Chebyshev UPL	2.493	95% Percentile	1.8
95% Chebyshev UPL	3.155	99% Percentile	2.49
95% USL	3		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, cadmium)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	34
Minimum	0.04	First Quartile	0.178
Second Largest	0.7	Median	0.23
Maximum	1	Third Quartile	0.305
Mean	0.268	SD	0.172
Coefficient of Variation	0.642	Skewness	2.209
Mean of logged Data	-1.478	SD of logged Data	0.577

Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972

Normal GOF Test			
Shapiro Wilk Test Statistic	0.794	Normal GOF Test	
5% Shapiro Wilk P Value	2.45E-09	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.192	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	0.621	90% Percentile (z)	0.489
95% UPL (t)	0.56	95% Percentile (z)	0.552
95% USL	0.781	99% Percentile (z)	0.669

Gamma GOF Test			
A-D Test Statistic	1.145	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.121	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.124	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			

Gamma Statistics			
k hat (MLE)	3.241	k star (bias corrected MLE)	3.067
Theta hat (MLE)	0.0828	Theta star (bias corrected MLE)	0.0875
nu hat (MLE)	337.1	nu star (bias corrected)	319
MLE Mean (bias corrected)	0.268	MLE Sd (bias corrected)	0.153

Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	0.562	90% Percentile	0.474
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.568	95% Percentile	0.56
95% WH Approx. Gamma UTL with 95% Coverage	0.654	99% Percentile	0.745
95% HW Approx. Gamma UTL with 95% Coverage	0.668		
95% WH USL	0.938	95% HW USL	0.988

Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.965	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.23	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.102	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			

Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	0.744	90% Percentile (z)	0.478
95% UPL (t)	0.605	95% Percentile (z)	0.589
95% USL	1.267	99% Percentile (z)	0.873

Nonparametric Distribution Free Background Statistics
Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	0.7
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	0.835	95% BCA Bootstrap UTL with 95% Coverage	0.807
95% UPL	0.668	90% Percentile	0.432
90% Chebyshev UPL	0.79	95% Percentile	0.628
95% Chebyshev UPL	1.027	99% Percentile	0.847
95% USL	1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, chromium)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	48
Minimum	7.2	First Quartile	11.7
Second Largest	26.6	Median	14.2
Maximum	41	Third Quartile	18.18
Mean	15.13	SD	5.397
Coefficient of Variation	0.357	Skewness	2.36
Mean of logged Data	2.667	SD of logged Data	0.308
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.831	Normal GOF Test	
5% Shapiro Wilk P Value	1.05E-07	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.158	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	26.19	90% Percentile (z)	22.05
95% UPL (t)	24.26	95% Percentile (z)	24.01
95% USL	31.17	99% Percentile (z)	27.69
Gamma GOF Test			
A-D Test Statistic	0.724	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.112	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	10.21	k star (bias corrected MLE)	9.636
Theta hat (MLE)	1.482	Theta star (bias corrected MLE)	1.57
nu hat (MLE)	1062	nu star (bias corrected)	1002
MLE Mean (bias corrected)	15.13	MLE Sd (bias corrected)	4.874
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	24.02	90% Percentile	21.62
95% Hawkins Wixley (HW) Approx. Gamma UPL	24.05	95% Percentile	23.94
95% WH Approx. Gamma UTL with 95% Coverage	26.42	99% Percentile	28.71
95% HW Approx. Gamma UTL with 95% Coverage	26.54		
95% WH USL	33.33	95% HW USL	33.85
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.969	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.332	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0894	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	27.05	90% Percentile (z)	21.36
95% UPL (t)	24.23	95% Percentile (z)	23.89
95% USL	35.95	99% Percentile (z)	29.46
Nonparametric Distribution Free Background Statistics			
Data appear Gamma Distributed at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	26.6
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	33.08	95% BCA Bootstrap UTL with 95% Coverage	31.15
95% UPL	24.33	90% Percentile	19.87
90% Chebyshev UPL	31.48	95% Percentile	22.11
95% Chebyshev UPL	38.88	99% Percentile	33.66
95% USL	41		

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Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, cobalt)

General Statistics			
Total Number of Observations	48	Number of Distinct Observations	36
Minimum	2.9	First Quartile	5.738
Second Largest	20.4	Median	6.75
Maximum	21.7	Third Quartile	7.8
Mean	7.926	SD	4.022
Coefficient of Variation	0.507	Skewness	2.175
Mean of logged Data	1.98	SD of logged Data	0.401
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
Normal GOF Test			
Shapiro Wilk Test Statistic	0.729	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.283	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	16.25	90% Percentile (z)	13.08
95% UPL (t)	14.74	95% Percentile (z)	14.54
95% USL	19.75	99% Percentile (z)	17.28
Gamma GOF Test			
A-D Test Statistic	2.673	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.23	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.712	k star (bias corrected MLE)	5.369
Theta hat (MLE)	1.388	Theta star (bias corrected MLE)	1.476
nu hat (MLE)	548.4	nu star (bias corrected)	515.4
MLE Mean (bias corrected)	7.926	MLE Sd (bias corrected)	3.421
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	14.31	90% Percentile	12.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	14.29	95% Percentile	14.26
95% WH Approx. Gamma UTL with 95% Coverage	16.24	99% Percentile	17.96
95% HW Approx. Gamma UTL with 95% Coverage	16.3		
95% WH USL	21.42	95% HW USL	21.82
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.898	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.198	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	16.6	90% Percentile (z)	12.11
95% UPL (t)	14.29	95% Percentile (z)	14.01
95% USL	23.55	99% Percentile (z)	18.41
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	47	95% UTL with 95% Coverage	20.4
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTl	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	21.25	95% BCA Bootstrap UTL with 95% Coverage	20.97
95% UPL	20.04	90% Percentile	12.02
90% Chebyshev UPL	20.12	95% Percentile	17.96
95% Chebyshev UPL	25.64	99% Percentile	21.09
95% USL	21.7		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, copper)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	49
Minimum	7.735	First Quartile	13.28
Second Largest	40.2	Median	15.95
Maximum	46.9	Third Quartile	22.65
Mean	18.93	SD	9.025
Coefficient of Variation	0.477	Skewness	1.359
Mean of logged Data	2.846	SD of logged Data	0.43
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.859	Normal GOF Test	
5% Shapiro Wilk P Value	1.87E-06	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.217	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	37.43	90% Percentile (z)	30.5
95% UPL (t)	34.2	95% Percentile (z)	33.78
95% USL	45.76	99% Percentile (z)	39.93
Gamma GOF Test			
A-D Test Statistic	1.147	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.176	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.403	k star (bias corrected MLE)	5.104
Theta hat (MLE)	3.504	Theta star (bias corrected MLE)	3.709
nu hat (MLE)	561.9	nu star (bias corrected)	530.8
MLE Mean (bias corrected)	18.93	MLE Sd (bias corrected)	8.38
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	34.68	90% Percentile	30.15
95% Hawkins Wixley (HW) Approx. Gamma UPL	34.85	95% Percentile	34.49
95% WH Approx. Gamma UTL with 95% Coverage	39.28	99% Percentile	43.64
95% HW Approx. Gamma UTL with 95% Coverage	39.72		
95% WH USL	52.97	95% HW USL	54.61
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.124	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.149	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	41.51	90% Percentile (z)	29.85
95% UPL (t)	35.59	95% Percentile (z)	34.89
95% USL	61.71	99% Percentile (z)	46.76
Nonparametric Distribution Free Background Statistics			
Data appear Approximate Lognormal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	40.2
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	43.22	95% BCA Bootstrap UTL with 95% Coverage	43.22
95% UPL	39.88	90% Percentile	32.18
90% Chebyshev UPL	46.27	95% Percentile	39.21
95% Chebyshev UPL	58.65	99% Percentile	43.48
95% USL	46.9		

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and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, iron)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	45
Minimum	12400	First Quartile	16475
Second Largest	33250	Median	19200
Maximum	39800	Third Quartile	21175
Mean	19853	SD	5192
Coefficient of Variation	0.262	Skewness	1.681
Mean of logged Data	9.867	SD of logged Data	0.234
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.874	Normal GOF Test	
5% Shapiro Wilk P Value	1.03E-05	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.163	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	30491	90% Percentile (z)	26506
95% UPL (t)	28634	95% Percentile (z)	28392
95% USL	35284	99% Percentile (z)	31930
Gamma GOF Test			
A-D Test Statistic	0.862	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.749	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.126	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	17.64	k star (bias corrected MLE)	16.64
Theta hat (MLE)	1125	Theta star (bias corrected MLE)	1193
nu hat (MLE)	1835	nu star (bias corrected)	1730
MLE Mean (bias corrected)	19853	MLE Sd (bias corrected)	4868
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	28569	90% Percentile	26290
95% Hawkins Wixley (HW) Approx. Gamma UPL	28583	95% Percentile	28478
95% WH Approx. Gamma UTL with 95% Coverage	30800	99% Percentile	32893
95% HW Approx. Gamma UTL with 95% Coverage	30875		
95% WH USL	37087	95% HW USL	37426
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.959	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.132	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.109	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	31161	90% Percentile (z)	26039
95% UPL (t)	28659	95% Percentile (z)	28349
95% USL	38674	99% Percentile (z)	33249
Nonparametric Distribution Free Background Statistics			
Data appear Lognormal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	33250
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	36198	95% BCA Bootstrap UTL with 95% Coverage	36198
95% UPL	32308	90% Percentile	25755
90% Chebyshev UPL	35577	95% Percentile	30095
95% Chebyshev UPL	42699	99% Percentile	36460
95% USL	39800		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, lead)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	44
Minimum	7.7	First Quartile	12.1
Second Largest	24.4	Median	14.65
Maximum	24.6	Third Quartile	18.3
Mean	15.11	SD	4.529
Coefficient of Variation	0.3	Skewness	0.327
Mean of logged Data	2.67	SD of logged Data	0.309
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.954	Normal GOF Test	
5% Shapiro Wilk P Value	0.0808	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0986	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	24.39	90% Percentile (z)	20.91
95% UPL (t)	22.77	95% Percentile (z)	22.56
95% USL	28.57	99% Percentile (z)	25.64
Gamma GOF Test			
A-D Test Statistic	0.313	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0812	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	11.16	k star (bias corrected MLE)	10.52
Theta hat (MLE)	1.354	Theta star (bias corrected MLE)	1.435
nu hat (MLE)	1160	nu star (bias corrected)	1095
MLE Mean (bias corrected)	15.11	MLE Sd (bias corrected)	4.657
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	23.62	90% Percentile	21.3
95% Hawkins Wixley (HW) Approx. Gamma UPL	23.77	95% Percentile	23.49
95% WH Approx. Gamma UTL with 95% Coverage	25.89	99% Percentile	27.99
95% HW Approx. Gamma UTL with 95% Coverage	26.16		
95% WH USL	32.41	95% HW USL	33.16
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.961	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.165	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0924	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	27.16	90% Percentile (z)	21.44
95% UPL (t)	24.32	95% Percentile (z)	23.98
95% USL	36.11	99% Percentile (z)	29.59
Nonparametric Distribution Free Background Statistics			
Data appear Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	24.4
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	24.49	95% BCA Bootstrap UTL with 95% Coverage	24.4
95% UPL	23.43	90% Percentile	22.01
90% Chebyshev UPL	28.82	95% Percentile	22.63
95% Chebyshev UPL	35.04	99% Percentile	24.5
95% USL	24.6		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, manganese)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	50
Minimum	294.5	First Quartile	455.3
Second Largest	1230	Median	553.5
Maximum	1710	Third Quartile	725.3
Mean	621.4	SD	261.2
Coefficient of Variation	0.42	Skewness	1.82
Mean of logged Data	6.36	SD of logged Data	0.372
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.866	Normal GOF Test	
5% Shapiro Wilk P Value	4.23E-06	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.136	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	1157	90% Percentile (z)	956.1
95% UPL (t)	1063	95% Percentile (z)	1051
95% USL	1398	99% Percentile (z)	1229
Gamma GOF Test			
A-D Test Statistic	0.502	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.752	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0967	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	7.122	k star (bias corrected MLE)	6.724
Theta hat (MLE)	87.25	Theta star (bias corrected MLE)	92.41
nu hat (MLE)	740.7	nu star (bias corrected)	699.3
MLE Mean (bias corrected)	621.4	MLE Sd (bias corrected)	239.6
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	1066	90% Percentile	941.4
95% Hawkins Wixley (HW) Approx. Gamma UPL	1069	95% Percentile	1061
95% WH Approx. Gamma UTL with 95% Coverage	1191	99% Percentile	1310
95% HW Approx. Gamma UTL with 95% Coverage	1200		
95% WH USL	1558	95% HW USL	1594
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.978	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.633	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0729	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	1240	90% Percentile (z)	931.6
95% UPL (t)	1085	95% Percentile (z)	1066
95% USL	1748	99% Percentile (z)	1374
Nonparametric Distribution Free Background Statistics			
Data appear Gamma Distributed at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	1230
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	1446	95% BCA Bootstrap UTL with 95% Coverage	1402
95% UPL	1178	90% Percentile	945.3
90% Chebyshev UPL	1413	95% Percentile	1046
95% Chebyshev UPL	1771	99% Percentile	1465
95% USL	1710		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, molybdenum)

General Statistics			
Total Number of Observations	48	Number of Distinct Observations	40
Minimum	0.25	First Quartile	0.424
Second Largest	3.5	Median	0.535
Maximum	8.9	Third Quartile	0.855
Mean	0.951	SD	1.362
Coefficient of Variation	1.432	Skewness	4.676
Mean of logged Data	-0.418	SD of logged Data	0.715
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
Normal GOF Test			
Shapiro Wilk Test Statistic	0.466	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.304	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	3.769	90% Percentile (z)	2.697
95% UPL (t)	3.26	95% Percentile (z)	3.191
95% USL	4.957	99% Percentile (z)	4.12
Gamma GOF Test			
A-D Test Statistic	4.13	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.229	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.13	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.504	k star (bias corrected MLE)	1.424
Theta hat (MLE)	0.632	Theta star (bias corrected MLE)	0.668
nu hat (MLE)	144.4	nu star (bias corrected)	136.7
MLE Mean (bias corrected)	0.951	MLE Sd (bias corrected)	0.797
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	2.432	90% Percentile	2.007
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.363	95% Percentile	2.521
95% WH Approx. Gamma UTL with 95% Coverage	3.006	99% Percentile	3.685
95% HW Approx. Gamma UTL with 95% Coverage	2.955		
95% WH USL	4.685	95% HW USL	4.766
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.864	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.174	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	2.889	90% Percentile (z)	1.646
95% UPL (t)	2.212	95% Percentile (z)	2.134
95% USL	5.392	99% Percentile (z)	3.474
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	47	95% UTL with 95% Coverage	3.5
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTl	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	7.01	95% BCA Bootstrap UTL with 95% Coverage	6.87
95% UPL	3.32	90% Percentile	1.515
90% Chebyshev UPL	5.08	95% Percentile	3.03
95% Chebyshev UPL	6.95	99% Percentile	6.362
95% USL	8.9		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, nickel)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	44
Minimum	5.6	First Quartile	9.8
Second Largest	35	Median	12.45
Maximum	43.4	Third Quartile	15.7
Mean	14.34	SD	7.484
Coefficient of Variation	0.522	Skewness	2.23
Mean of logged Data	2.568	SD of logged Data	0.415
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.75	Normal GOF Test	
5% Shapiro Wilk P Value	3.59E-11	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.238	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	29.68	90% Percentile (z)	23.94
95% UPL (t)	27	95% Percentile (z)	26.66
95% USL	36.59	99% Percentile (z)	31.76
Gamma GOF Test			
A-D Test Statistic	2.192	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.183	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.38	k star (bias corrected MLE)	5.082
Theta hat (MLE)	2.666	Theta star (bias corrected MLE)	2.822
nu hat (MLE)	559.5	nu star (bias corrected)	528.6
MLE Mean (bias corrected)	14.34	MLE Sd (bias corrected)	6.363
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	26.24	90% Percentile	22.86
95% Hawkins Wixley (HW) Approx. Gamma UPL	26.22	95% Percentile	26.16
95% WH Approx. Gamma UTL with 95% Coverage	29.71	99% Percentile	33.11
95% HW Approx. Gamma UTL with 95% Coverage	29.84		
95% WH USL	40.07	95% HW USL	40.95
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.924	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.0029	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.15	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	30.52	90% Percentile (z)	22.19
95% UPL (t)	26.31	95% Percentile (z)	25.8
95% USL	44.78	99% Percentile (z)	34.24
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	35
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	38.78	95% BCA Bootstrap UTL with 95% Coverage	38.78
95% UPL	34.48	90% Percentile	20.4
90% Chebyshev UPL	37.01	95% Percentile	33.71
95% Chebyshev UPL	47.28	99% Percentile	39.12
95% USL	43.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, selenium)

General Statistics

Total Number of Observations	6	Number of Missing Observations	0
Number of Distinct Observations	5		
Number of Detects	5	Number of Non-Detects	1
Number of Distinct Detects	4	Number of Distinct Non-Detects	1
Minimum Detect	0.08	Minimum Non-Detect	0.19
Maximum Detect	0.09	Maximum Non-Detect	0.19
Variance Detected	1.72E-05	Percent Non-Detects	16.67%
Mean Detected	0.0837	SD Detected	0.00415
Mean of Detected Logged Data	-2.482	SD of Detected Logged Data	0.049

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	3.708	d2max (for USL)	1.822

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.895	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.212	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.343	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0837	KM SD	0.00371
95% UTL95% Coverage	0.0974	95% KM UPL (t)	0.0917
90% KM Percentile (z)	0.0884	95% KM Percentile (z)	0.0898
99% KM Percentile (z)	0.0923	95% KM USL	0.0904

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0856	SD	0.00593
95% UTL95% Coverage	0.108	95% UPL (t)	0.0985
90% Percentile (z)	0.0932	95% Percentile (z)	0.0953
99% Percentile (z)	0.0994	95% USL	0.0964

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.352	Anderson-Darling GOF Test	
5% A-D Critical Value	0.678	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.24	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.357	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	516.6	k star (bias corrected MLE)	206.8
Theta hat (MLE)	1.62E-04	Theta star (bias corrected MLE)	4.05E-04
nu hat (MLE)	5166	nu star (bias corrected)	2068
MLE Mean (bias corrected)	0.0837		
MLE Sd (bias corrected)	0.00582	95% Percentile of Chisquare (2kstar)	462

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.08	Mean	0.0837
Maximum	0.09	Median	0.0835
SD	0.00371	CV	0.0444
k hat (MLE)	619.9	k star (bias corrected MLE)	310.1
Theta hat (MLE)	1.35E-04	Theta star (bias corrected MLE)	2.70E-04
nu hat (MLE)	7439	nu star (bias corrected)	3721
MLE Mean (bias corrected)	0.0837	MLE Sd (bias corrected)	0.00475
95% Percentile of Chisquare (2kstar)	679.2	90% Percentile	0.0898
95% Percentile	0.0916	99% Percentile	0.0951

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.098	0.0981	95% Approx. Gamma UPL	0.0919	0.0919
95% Gamma USL	0.0905	0.0905			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0837	SD (KM)	0.00371
Variance (KM)	1.38E-05	SE of Mean (KM)	0.00186
k hat (KM)	508.1	k star (KM)	254.1
nu hat (KM)	6097	nu star (KM)	3050
theta hat (KM)	1.65E-04	theta star (KM)	3.29E-04
80% gamma percentile (KM)	0.088	90% gamma percentile (KM)	0.0905
95% gamma percentile (KM)	0.0925	99% gamma percentile (KM)	0.0964

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.098	0.0981	95% Approx. Gamma UPL	0.0919	0.0919
95% KM Gamma Percentile	0.0898	0.0898	95% Gamma USL	0.0905	0.0905

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.899	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Lognormal at 5% Significance Level	

Background Statistics for Data Sets with Non-Detects

Lilliefors Test Statistic	0.215	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.343	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0837	Mean in Log Scale	-2.482
SD in Original Scale	0.00371	SD in Log Scale	0.0438
95% UTL95% Coverage	0.0983	95% BCA UTL95% Coverage	0.09
95% Bootstrap (%) UTL95% Coverage	0.09	95% UPL (t)	0.092
90% Percentile (z)	0.0884	95% Percentile (z)	0.0898
99% Percentile (z)	0.0926	95% USL	0.0905

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.482	95% KM UTL (Lognormal)95% Coverage	0.0983
KM SD of Logged Data	0.0438	95% KM UPL (Lognormal)	0.092
95% KM Percentile Lognormal (z)	0.0898	95% KM USL (Lognormal)	0.0905

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0856	Mean in Log Scale	-2.461
SD in Original Scale	0.00593	SD in Log Scale	0.0682
95% UTL95% Coverage	0.11	95% UPL (t)	0.0991
90% Percentile (z)	0.0932	95% Percentile (z)	0.0955
99% Percentile (z)	0.1	95% USL	0.0967

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	6	95% UTL with95% Coverage	0.19
Approx, f used to compute achieved CC	0.316	Approximate Actual Confidence Coefficient achieved by UTl	0.265
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.19
95% USL	0.19	95% KM Chebyshev UPL	0.101

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, silver)

General Statistics			
Total Number of Observations	6	Number of Distinct Observations	6
Minimum	0.02	First Quartile	0.0313
Second Largest	0.0467	Median	0.0375
Maximum	0.05	Third Quartile	0.045
Mean	0.0369	SD	0.0111
Coefficient of Variation	0.3	Skewness	-0.449
Mean of logged Data	-3.342	SD of logged Data	0.336
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	3.708	d2max (for USL)	1.822
Normal GOF Test			
Shapiro Wilk Test Statistic	0.971	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.143	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	0.078	90% Percentile (z)	0.0511
95% UPL (t)	0.0611	95% Percentile (z)	0.0552
95% USL	0.0571	99% Percentile (z)	0.0627
Gamma GOF Test			
A-D Test Statistic	0.238	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.156	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	11.69	k star (bias corrected MLE)	5.956
Theta hat (MLE)	0.00316	Theta star (bias corrected MLE)	0.0062
nu hat (MLE)	140.3	nu star (bias corrected)	71.47
MLE Mean (bias corrected)	0.0369	MLE Sd (bias corrected)	0.0151
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0676	90% Percentile	0.0572
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0688	95% Percentile	0.0648
95% WH Approx. Gamma UTL with 95% Coverage	0.0985	99% Percentile	0.0809
95% HW Approx. Gamma UTL with 95% Coverage	0.103		
95% WH USL	0.0615	95% HW USL	0.0623
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.932	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.154	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	0.123	90% Percentile (z)	0.0544
95% UPL (t)	0.0735	95% Percentile (z)	0.0615
95% USL	0.0652	99% Percentile (z)	0.0773
Nonparametric Distribution Free Background Statistics			
Data appear Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	6	95% UTL with 95% Coverage	0.05
Approx, f used to compute achieved CC	0.316	Approximate Actual Confidence Coefficient achieved by UTl	0.265
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.05	95% BCA Bootstrap UTL with 95% Coverage	0.05
95% UPL	0.05	90% Percentile	0.0483
90% Chebyshev UPL	0.0728	95% Percentile	0.0492
95% Chebyshev UPL	0.0891	99% Percentile	0.0498
95% USL	0.05		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, thallium)

General Statistics			
Total Number of Observations	48	Number of Distinct Observations	27
Minimum	0.09	First Quartile	0.2
Second Largest	0.47	Median	0.24
Maximum	0.68	Third Quartile	0.293
Mean	0.259	SD	0.109
Coefficient of Variation	0.42	Skewness	1.365
Mean of logged Data	-1.434	SD of logged Data	0.415
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
Normal GOF Test			
Shapiro Wilk Test Statistic	0.914	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.137	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	0.484	90% Percentile (z)	0.398
95% UPL (t)	0.443	95% Percentile (z)	0.438
95% USL	0.578	99% Percentile (z)	0.512
Gamma GOF Test			
A-D Test Statistic	0.479	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.752	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.107	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	6.256	k star (bias corrected MLE)	5.879
Theta hat (MLE)	0.0414	Theta star (bias corrected MLE)	0.044
nu hat (MLE)	600.6	nu star (bias corrected)	564.4
MLE Mean (bias corrected)	0.259	MLE Sd (bias corrected)	0.107
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	0.459	90% Percentile	0.402
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.463	95% Percentile	0.456
95% WH Approx. Gamma UTL with 95% Coverage	0.518	99% Percentile	0.569
95% HW Approx. Gamma UTL with 95% Coverage	0.527		
95% WH USL	0.677	95% HW USL	0.701
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.97	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.128	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	0.563	90% Percentile (z)	0.406
95% UPL (t)	0.482	95% Percentile (z)	0.472
95% USL	0.808	99% Percentile (z)	0.626
Nonparametric Distribution Free Background Statistics			
Data appear Gamma Distributed at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	47	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTl	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	0.607	95% BCA Bootstrap UTL with 95% Coverage	0.593
95% UPL	0.452	90% Percentile	0.41
90% Chebyshev UPL	0.588	95% Percentile	0.427
95% Chebyshev UPL	0.738	99% Percentile	0.581
95% USL	0.68		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, vanadium)

General Statistics			
Total Number of Observations	48	Number of Distinct Observations	45
Minimum	18.4	First Quartile	25.44
Second Largest	46.45	Median	27.9
Maximum	59.1	Third Quartile	33.5
Mean	30.26	SD	7.676
Coefficient of Variation	0.254	Skewness	1.477
Mean of logged Data	3.382	SD of logged Data	0.232
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
Normal GOF Test			
Shapiro Wilk Test Statistic	0.897	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.164	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	46.14	90% Percentile (z)	40.09
95% UPL (t)	43.27	95% Percentile (z)	42.88
95% USL	52.83	99% Percentile (z)	48.11
Gamma GOF Test			
A-D Test Statistic	0.862	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.141	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	18.24	k star (bias corrected MLE)	17.11
Theta hat (MLE)	1.659	Theta star (bias corrected MLE)	1.768
nu hat (MLE)	1751	nu star (bias corrected)	1643
MLE Mean (bias corrected)	30.26	MLE Sd (bias corrected)	7.314
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	43.36	90% Percentile	39.93
95% Hawkins Wixley (HW) Approx. Gamma UPL	43.41	95% Percentile	43.21
95% WH Approx. Gamma UTL with 95% Coverage	46.85	99% Percentile	49.82
95% HW Approx. Gamma UTL with 95% Coverage	46.99		
95% WH USL	55.71	95% HW USL	56.24
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.968	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.127	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	47.53	90% Percentile (z)	39.61
95% UPL (t)	43.59	95% Percentile (z)	43.09
95% USL	58.18	99% Percentile (z)	50.46
Nonparametric Distribution Free Background Statistics			
Data appear Lognormal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	47	95% UTL with 95% Coverage	46.45
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTl	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	54.67	95% BCA Bootstrap UTL with 95% Coverage	53.96
95% UPL	45.53	90% Percentile	40.59
90% Chebyshev UPL	53.52	95% Percentile	43.32
95% Chebyshev UPL	64.06	99% Percentile	53.15
95% USL	59.1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, zinc)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	51
Minimum	32.75	First Quartile	50.48
Second Largest	115	Median	58.8
Maximum	126	Third Quartile	72.4
Mean	64.45	SD	19.55
Coefficient of Variation	0.303	Skewness	1.155
Mean of logged Data	4.125	SD of logged Data	0.285
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.92	Normal GOF Test	
5% Shapiro Wilk P Value	0.00168	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.138	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	104.5	90% Percentile (z)	89.51
95% UPL (t)	97.52	95% Percentile (z)	96.61
95% USL	122.6	99% Percentile (z)	109.9
Gamma GOF Test			
A-D Test Statistic	0.492	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.103	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	12.37	k star (bias corrected MLE)	11.67
Theta hat (MLE)	5.211	Theta star (bias corrected MLE)	5.524
nu hat (MLE)	1286	nu star (bias corrected)	1214
MLE Mean (bias corrected)	64.45	MLE Sd (bias corrected)	18.87
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	98.71	90% Percentile	89.51
95% Hawkins Wixley (HW) Approx. Gamma UPL	99	95% Percentile	98.3
95% WH Approx. Gamma UTL with 95% Coverage	107.8	99% Percentile	116.2
95% HW Approx. Gamma UTL with 95% Coverage	108.4		
95% WH USL	133.7	95% HW USL	135.8
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.983	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.813	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0854	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	110.8	90% Percentile (z)	89.08
95% UPL (t)	100.1	95% Percentile (z)	98.78
95% USL	144.1	99% Percentile (z)	119.9
Nonparametric Distribution Free Background Statistics			
Data appear Gamma Distributed at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	115
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	120	95% BCA Bootstrap UTL with 95% Coverage	120
95% UPL	110.5	90% Percentile	89.69
90% Chebyshev UPL	123.7	95% Percentile	102.5
95% Chebyshev UPL	150.5	99% Percentile	120.4
95% USL	126		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

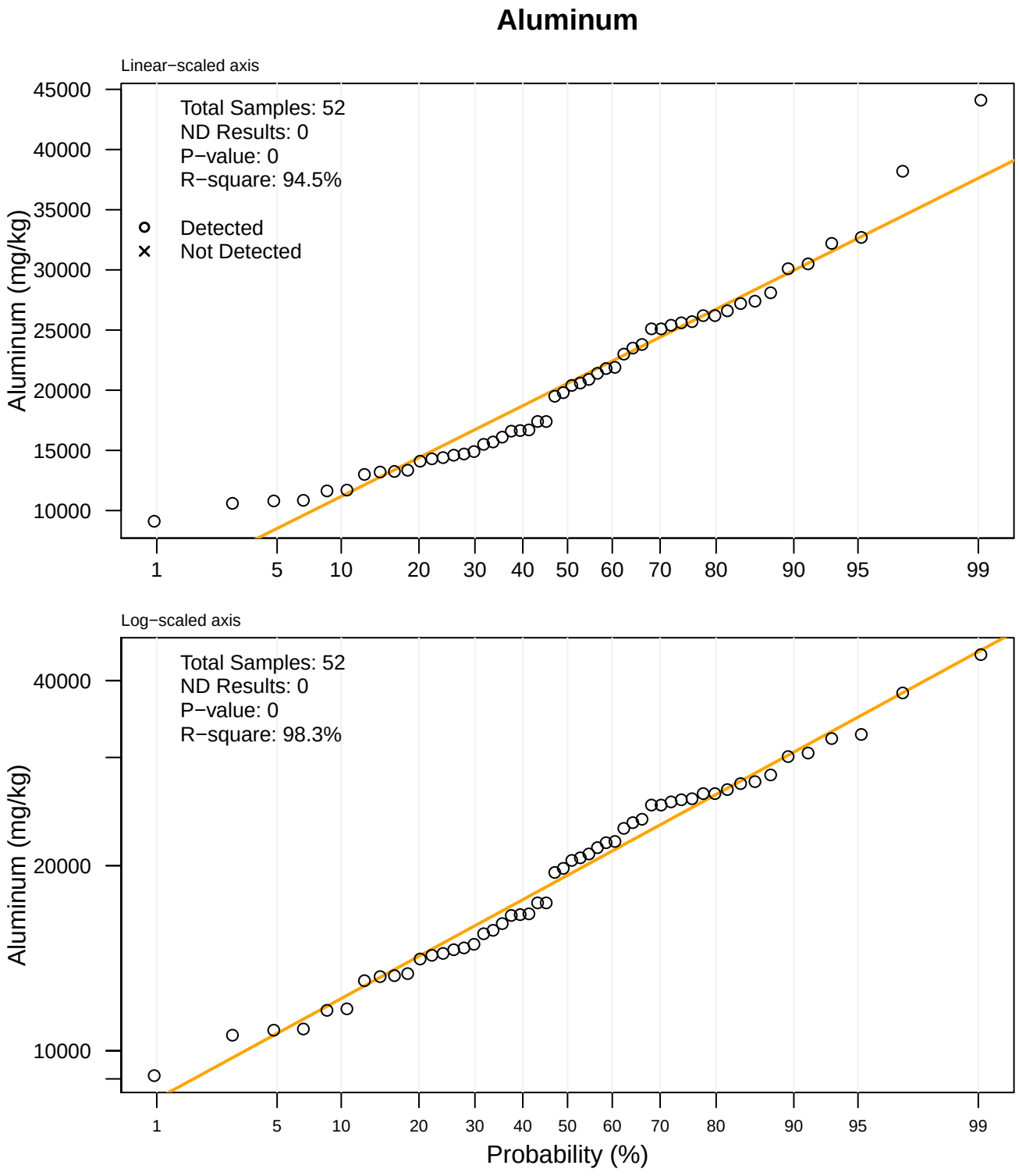


Figure C2−1. Boxplots of aluminum concentrations by partial digestion methods

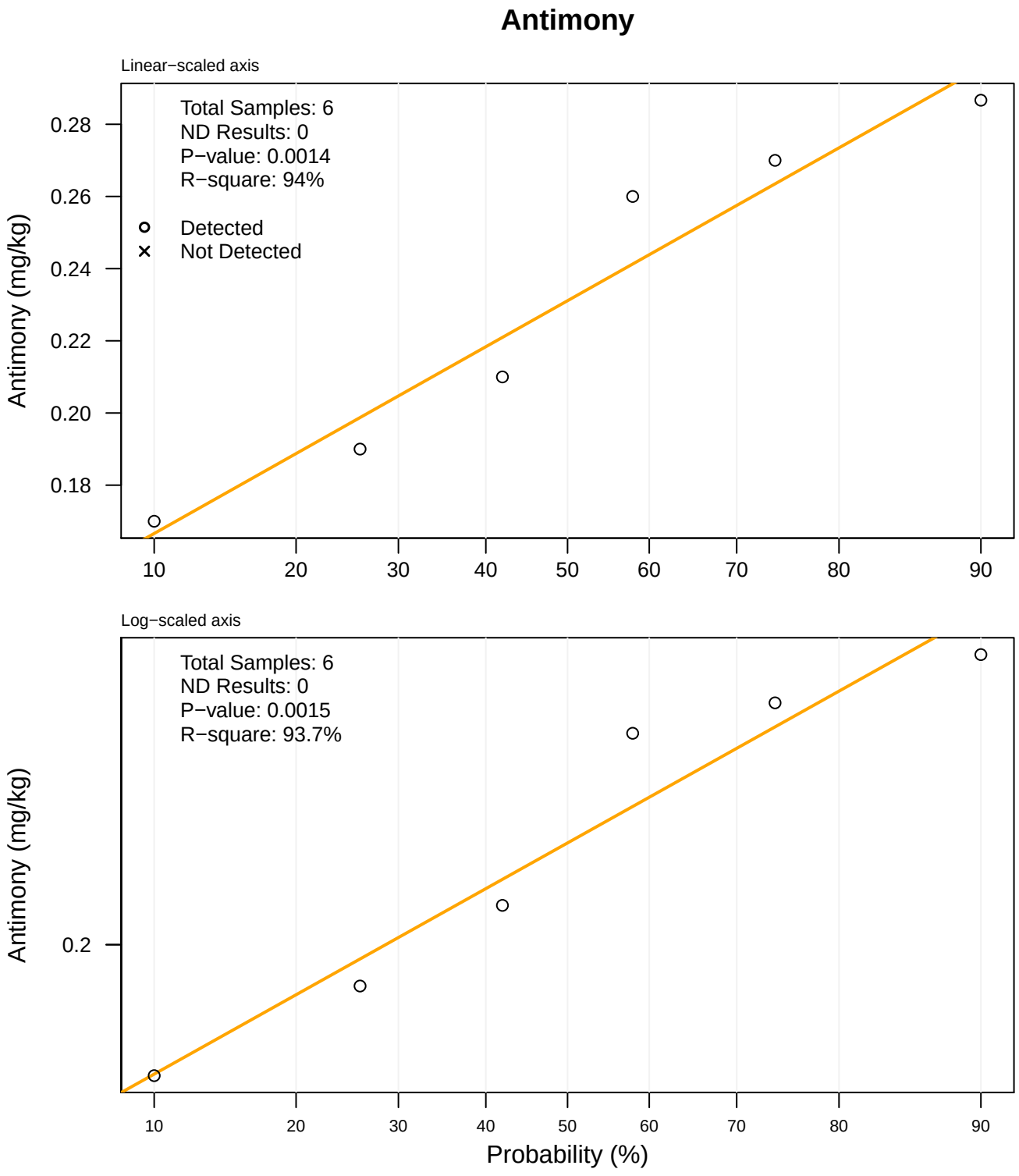


Figure C2−2. Boxplots of antimony concentrations by partial digestion methods

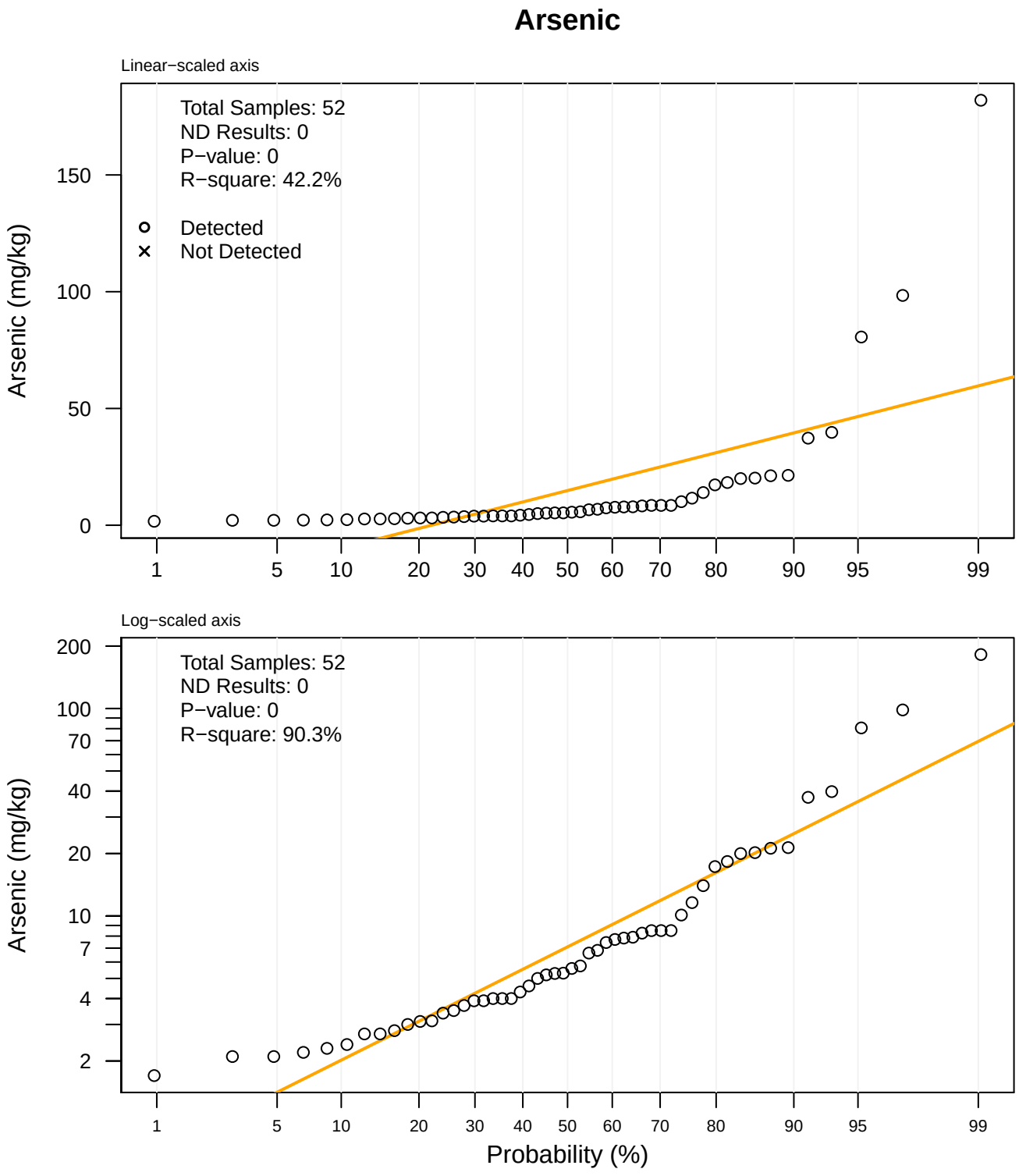


Figure C2−3. Boxplots of arsenic concentrations by partial digestion methods

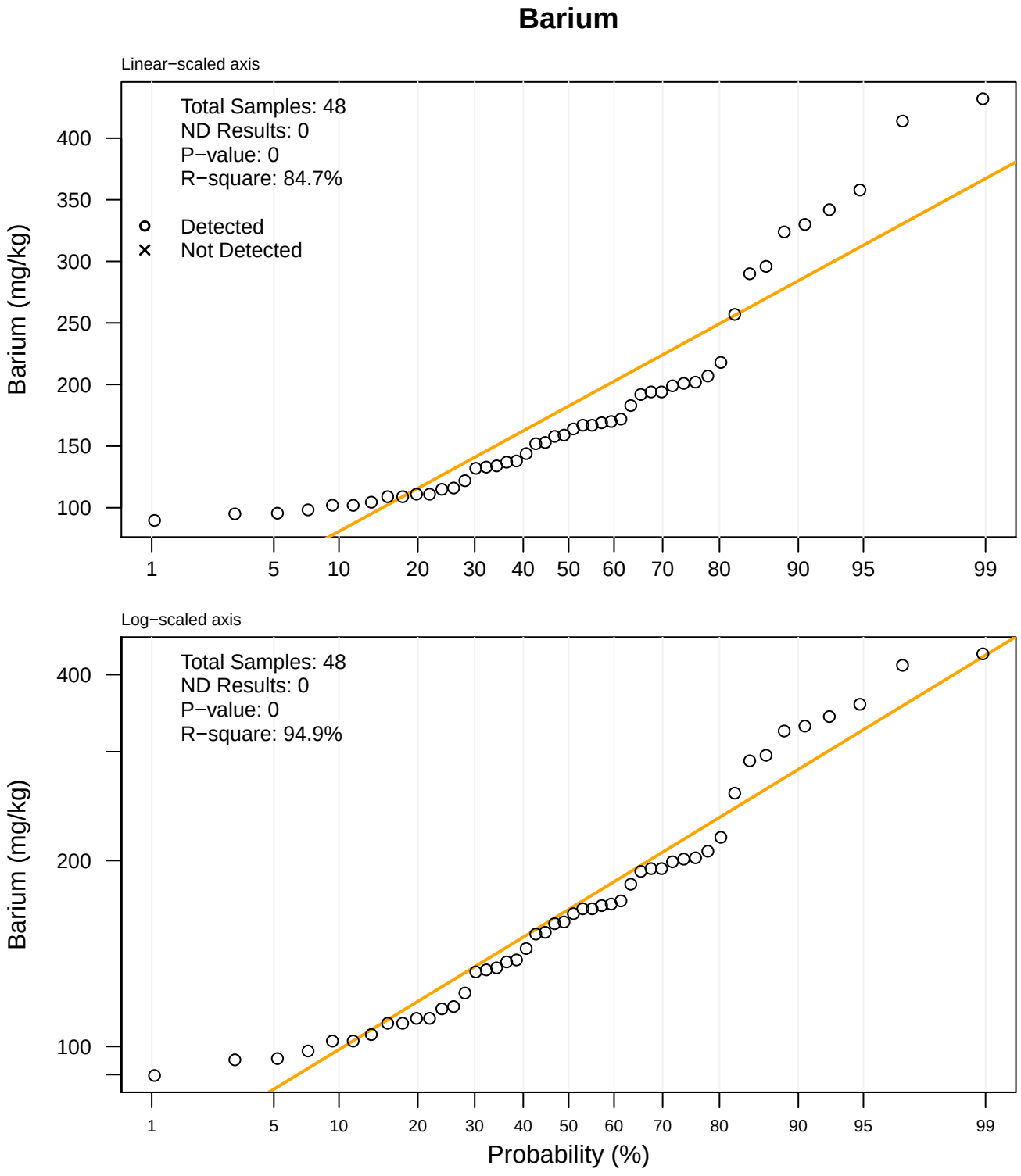


Figure C2−4. Boxplots of barium concentrations by partial digestion methods

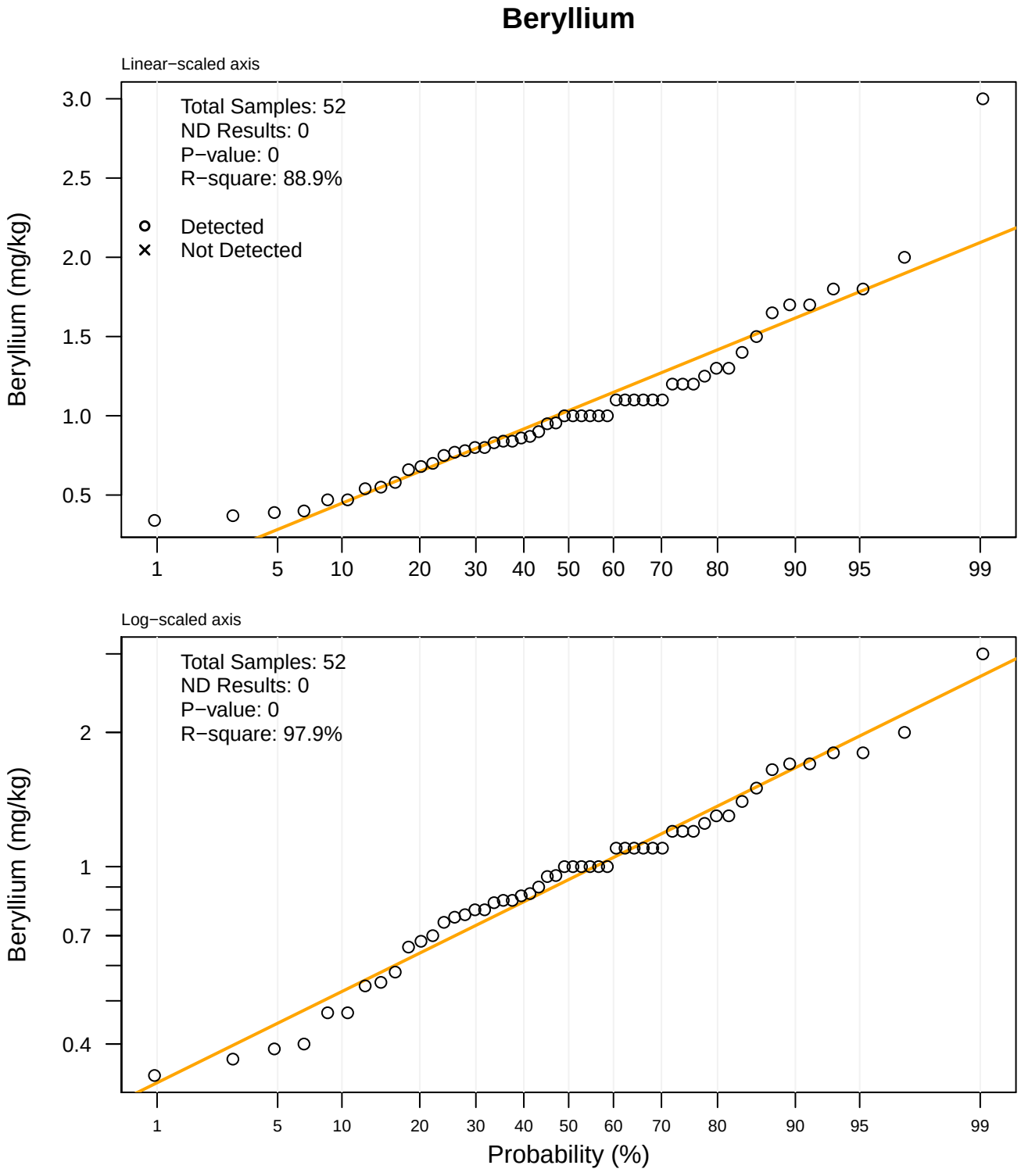


Figure C2−5. Boxplots of beryllium concentrations by partial digestion methods

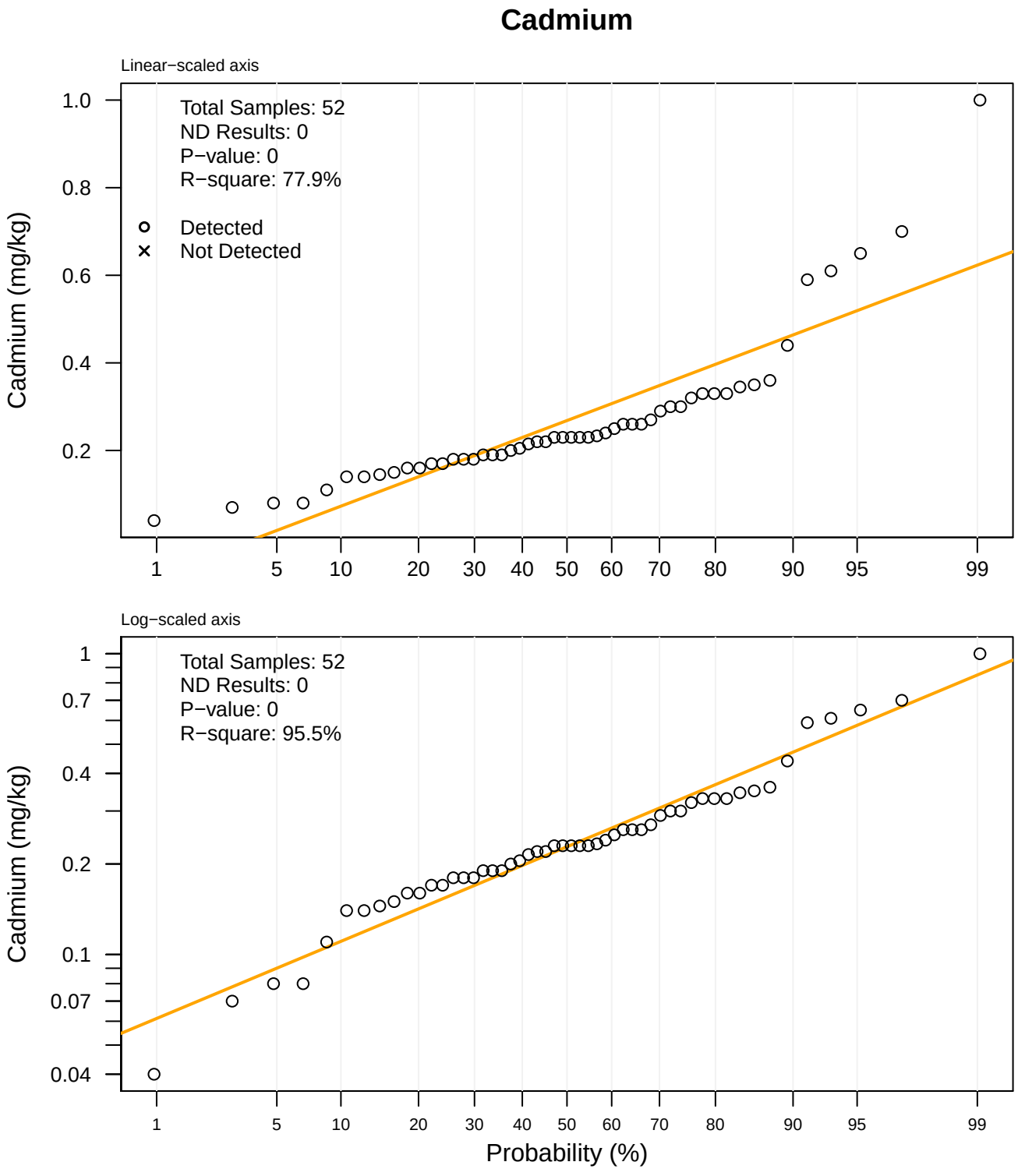


Figure C2−6. Boxplots of cadmium concentrations by partial digestion methods

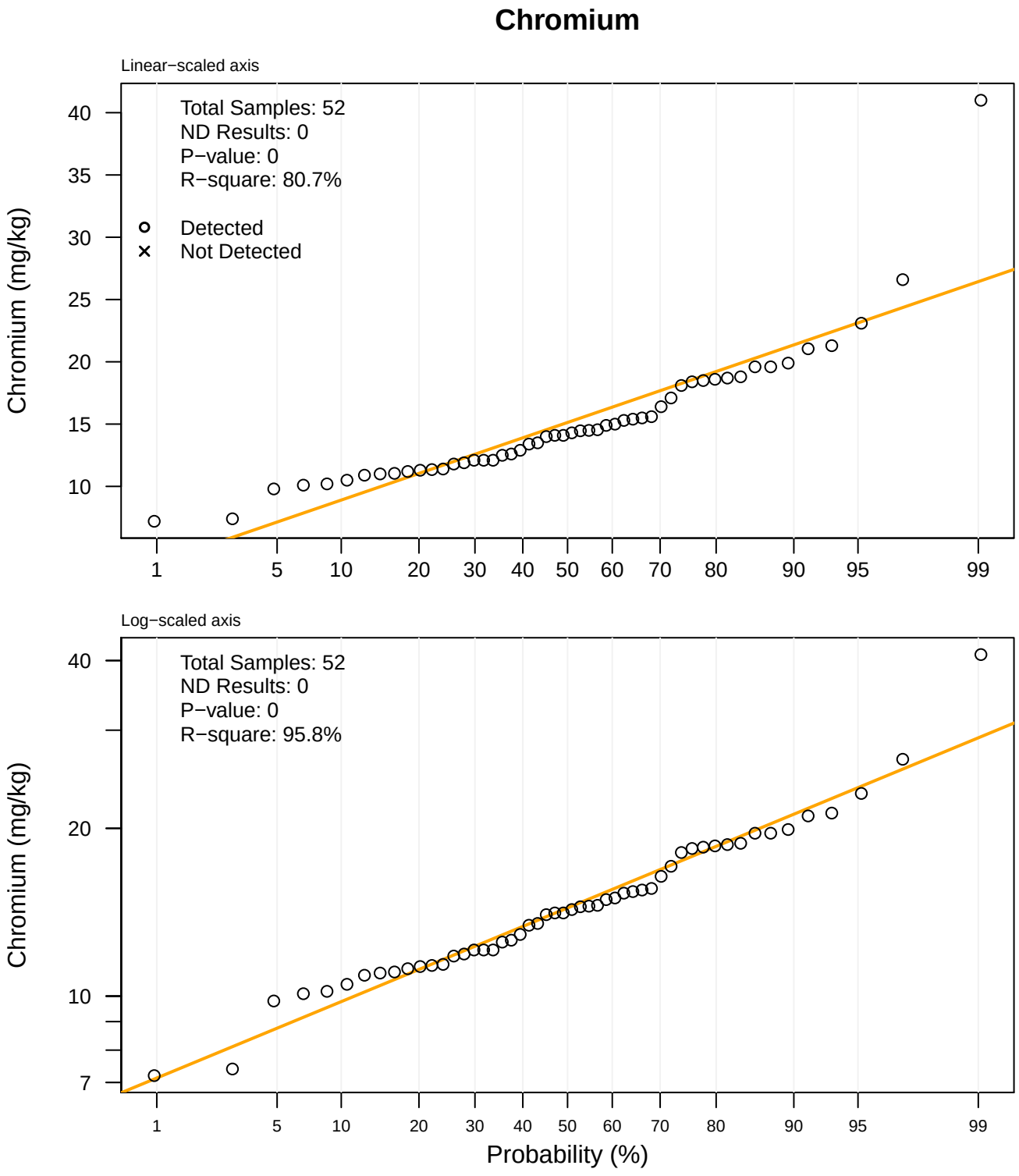


Figure C2−7. Boxplots of chromium concentrations by partial digestion methods

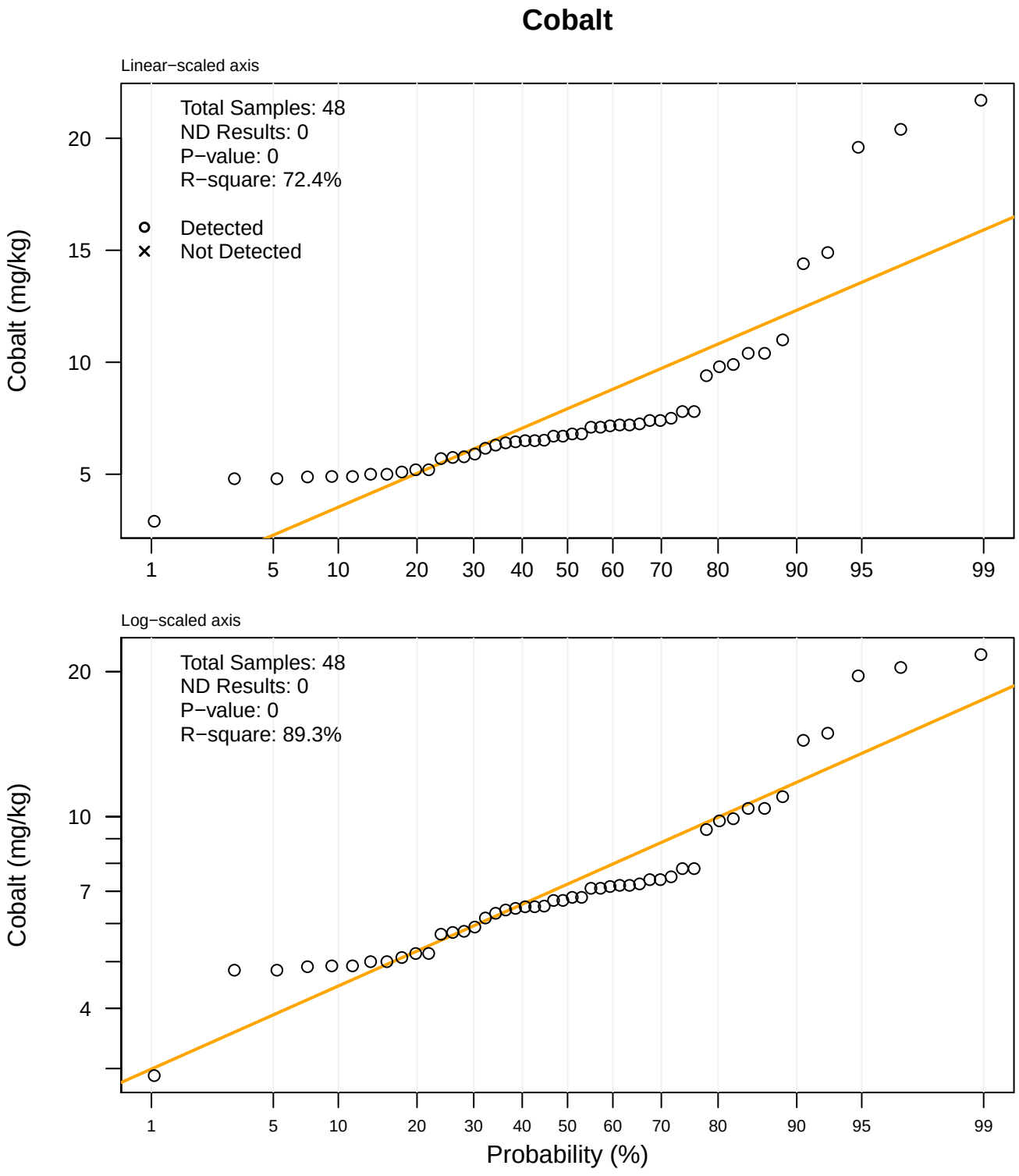


Figure C2−8. Boxplots of cobalt concentrations by partial digestion methods

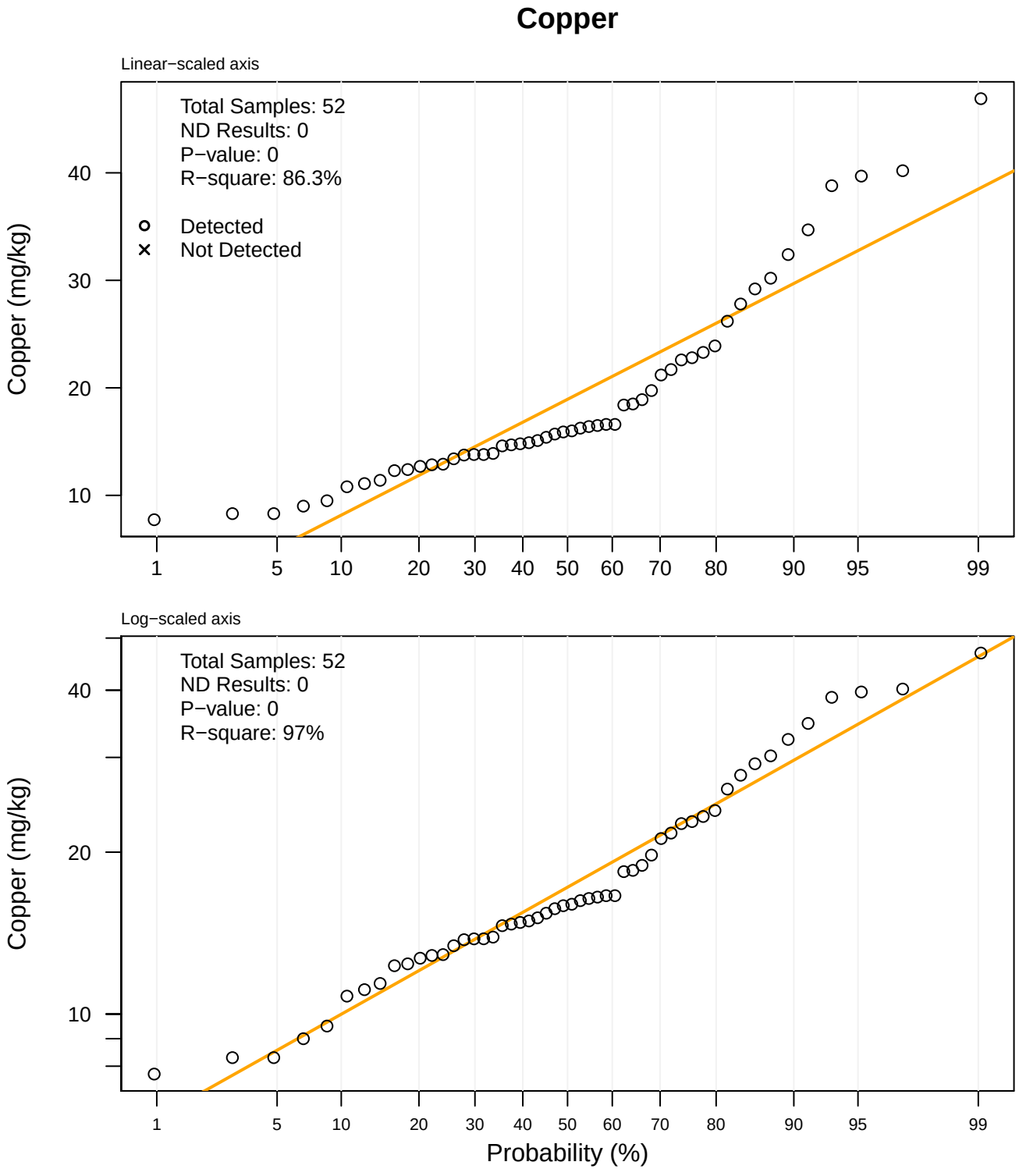


Figure C2−9. Boxplots of copper concentrations by partial digestion methods

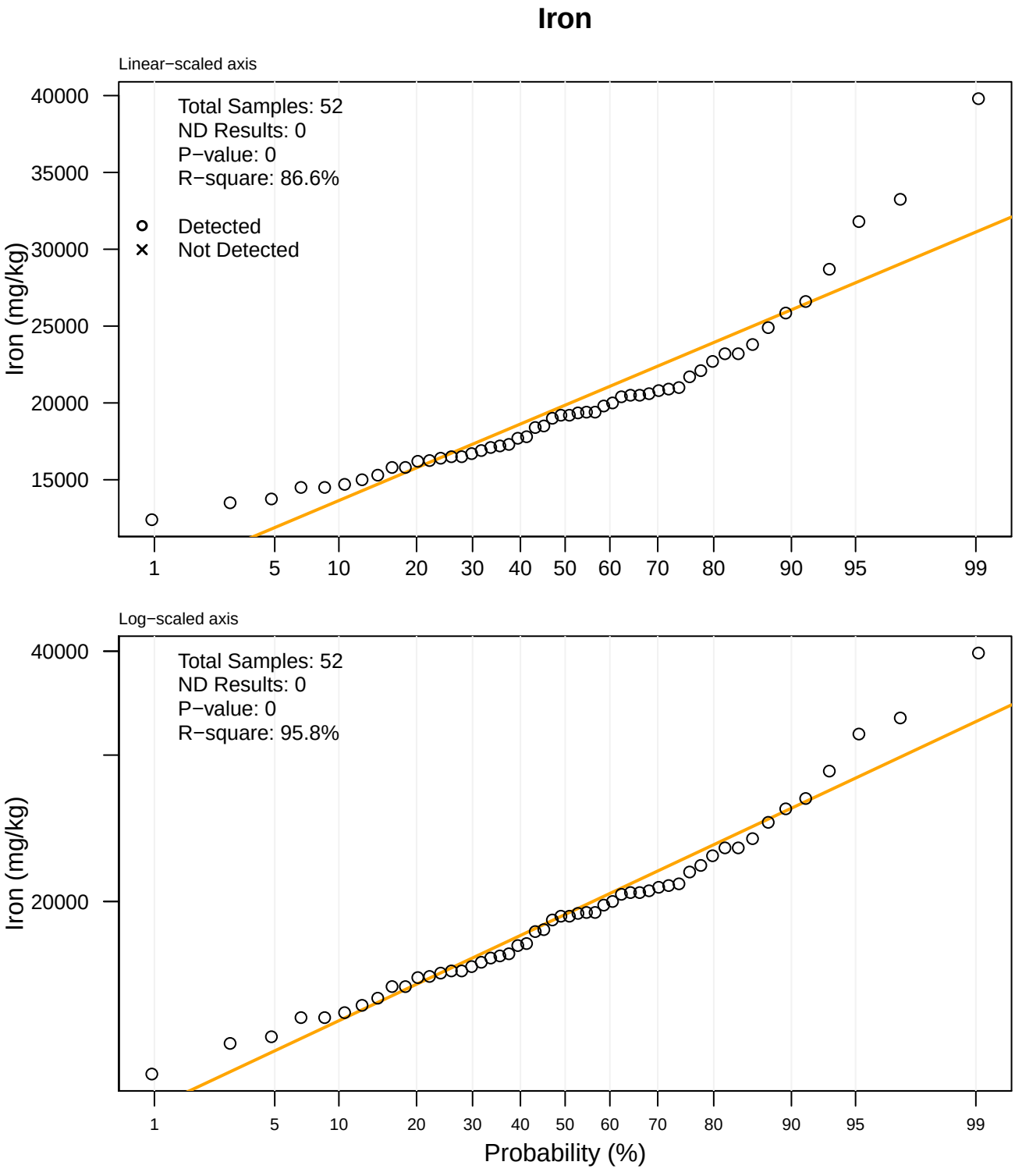


Figure C2−10. Boxplots of iron concentrations by partial digestion methods

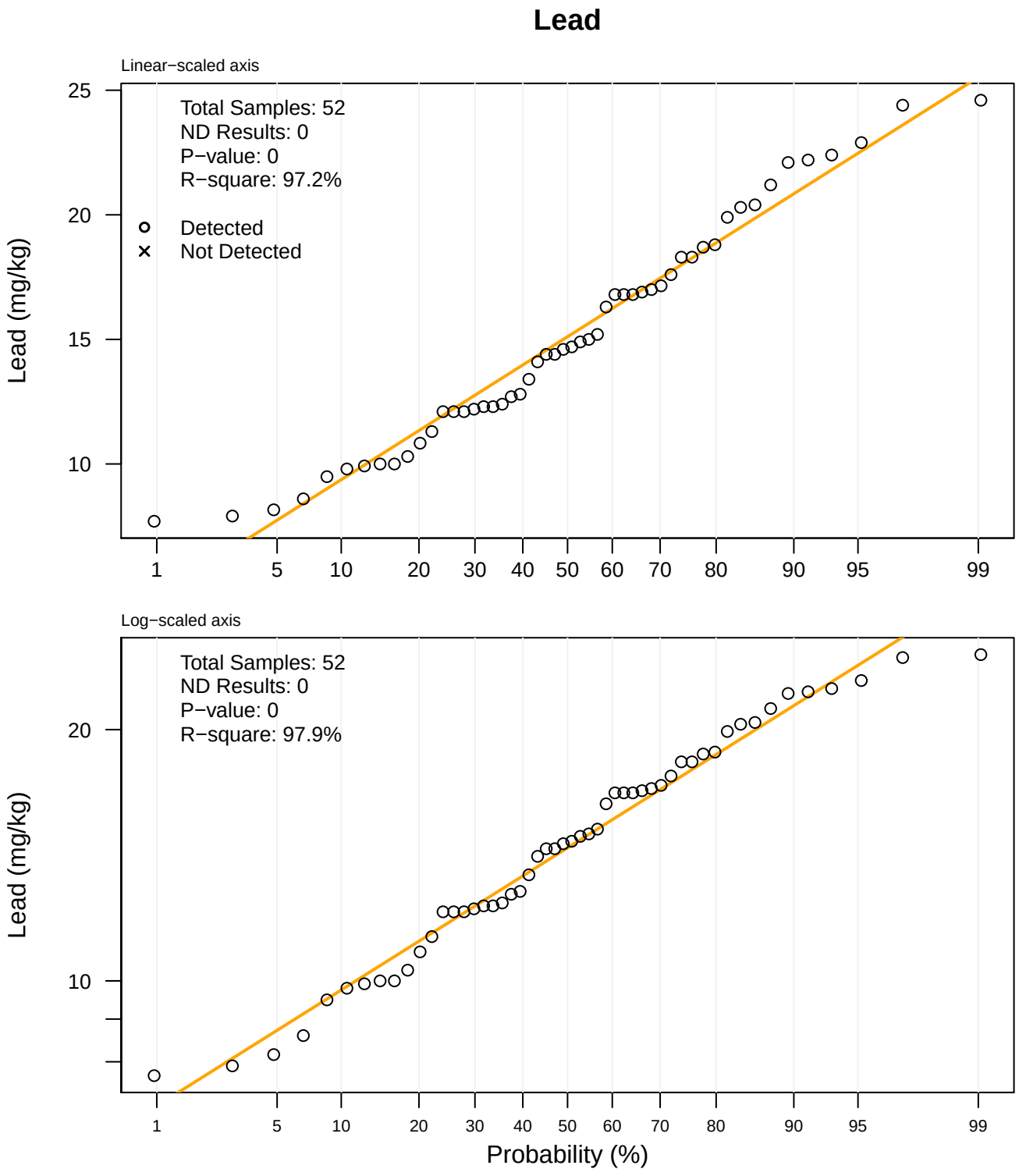


Figure C2−11. Boxplots of lead concentrations by partial digestion methods

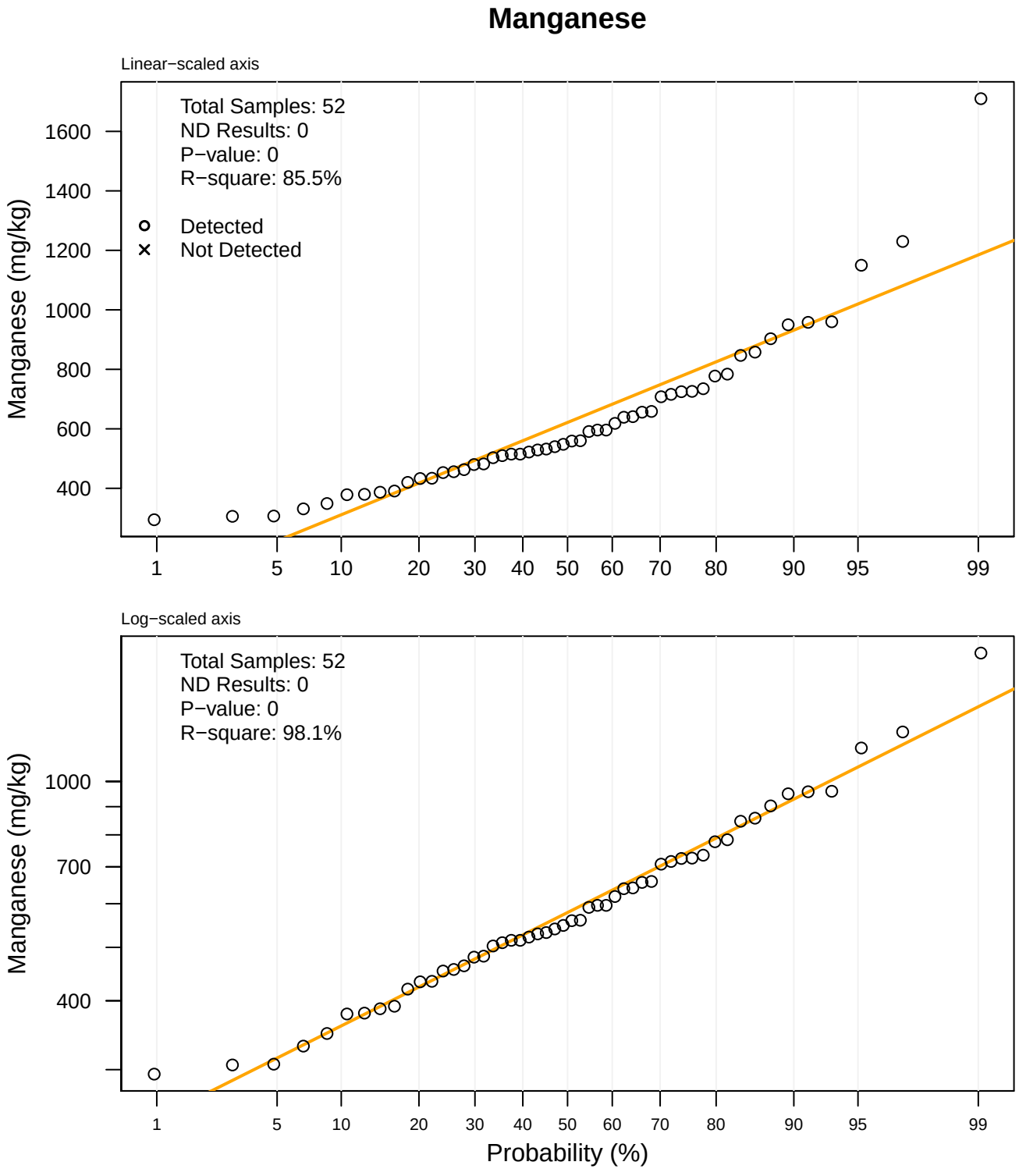


Figure C2−12. Boxplots of manganese concentrations by partial digestion methods

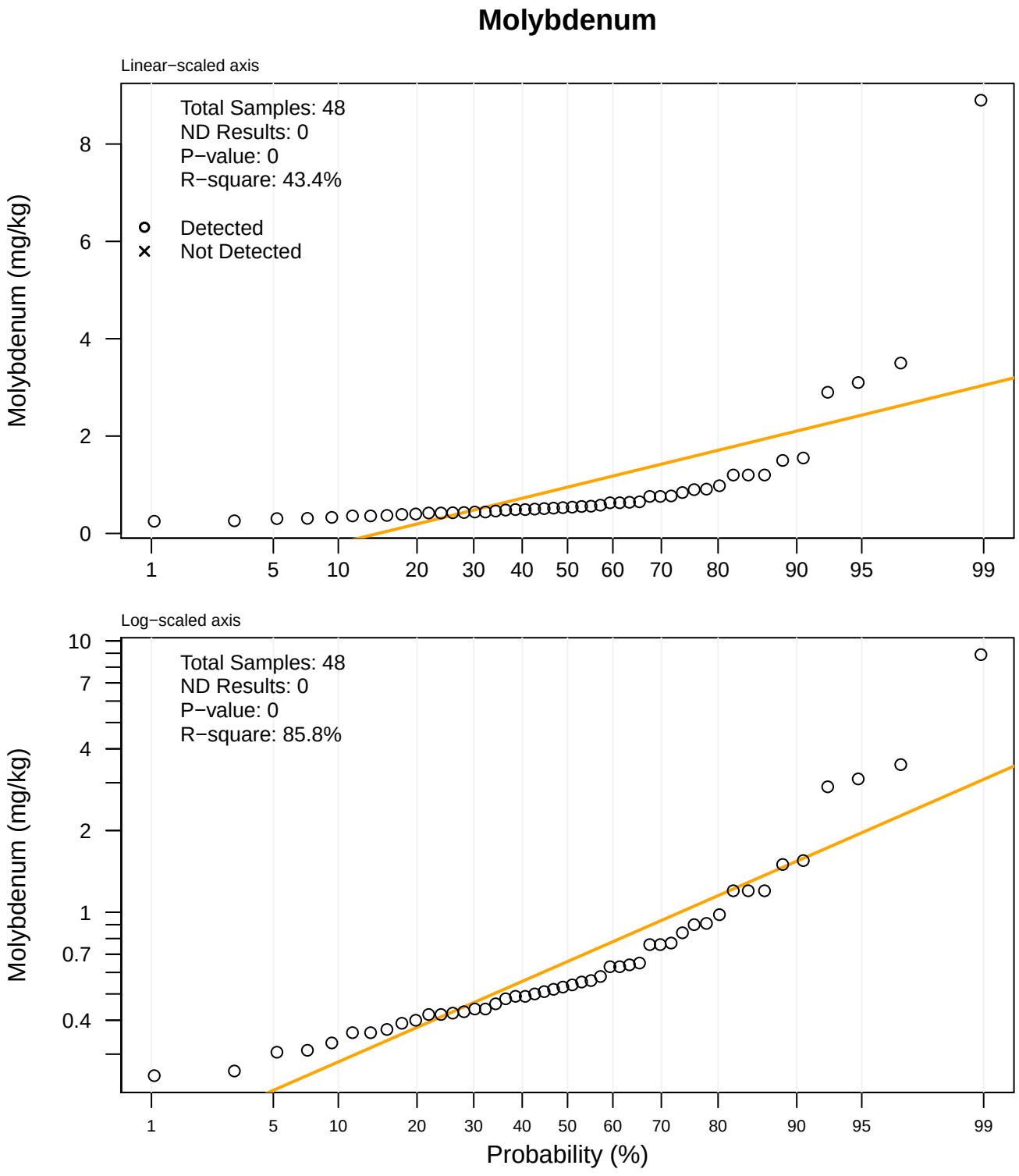


Figure C2−13. Boxplots of molybdenum concentrations by partial digestion methods

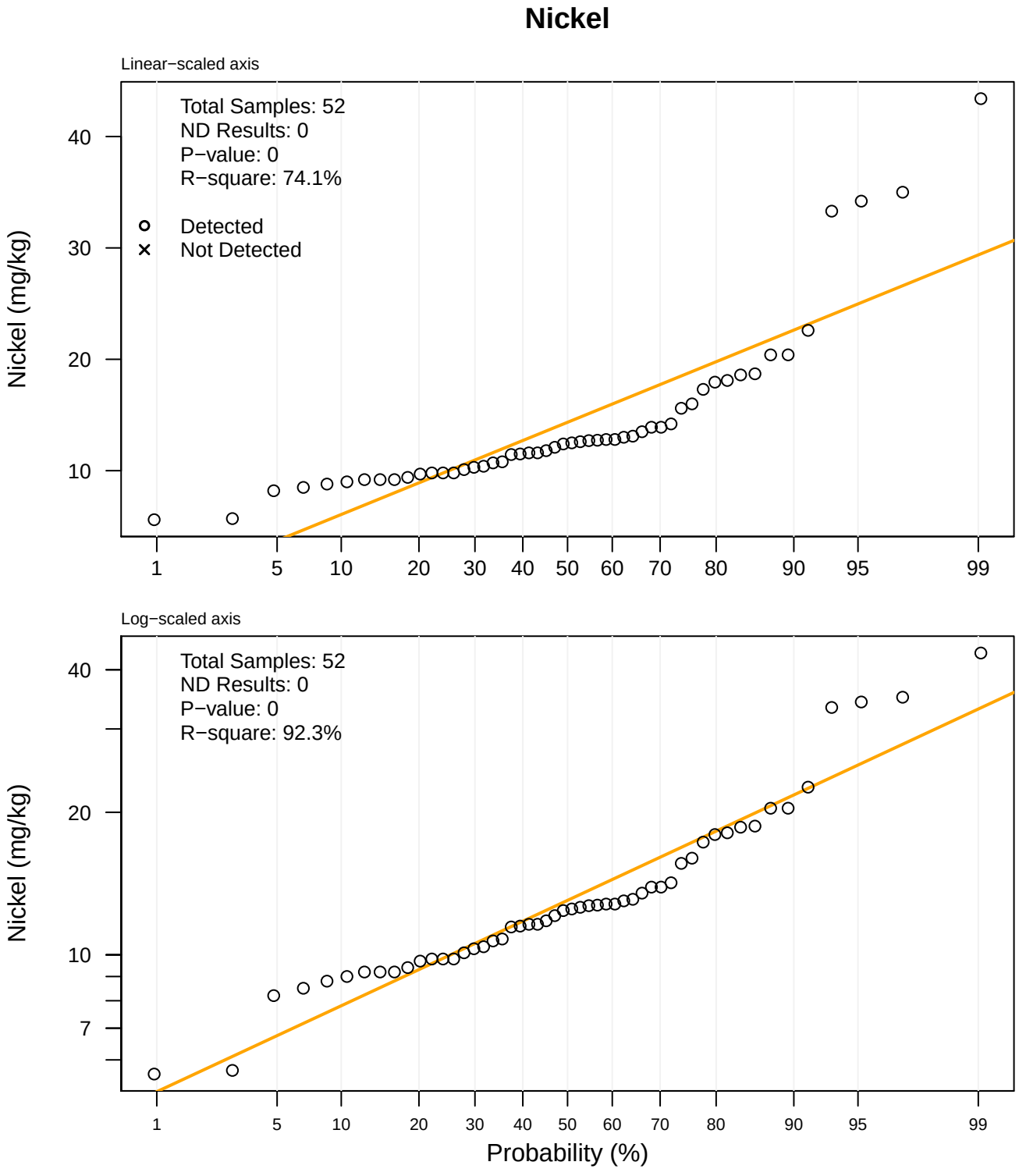


Figure C2−14. Boxplots of nickel concentrations by partial digestion methods

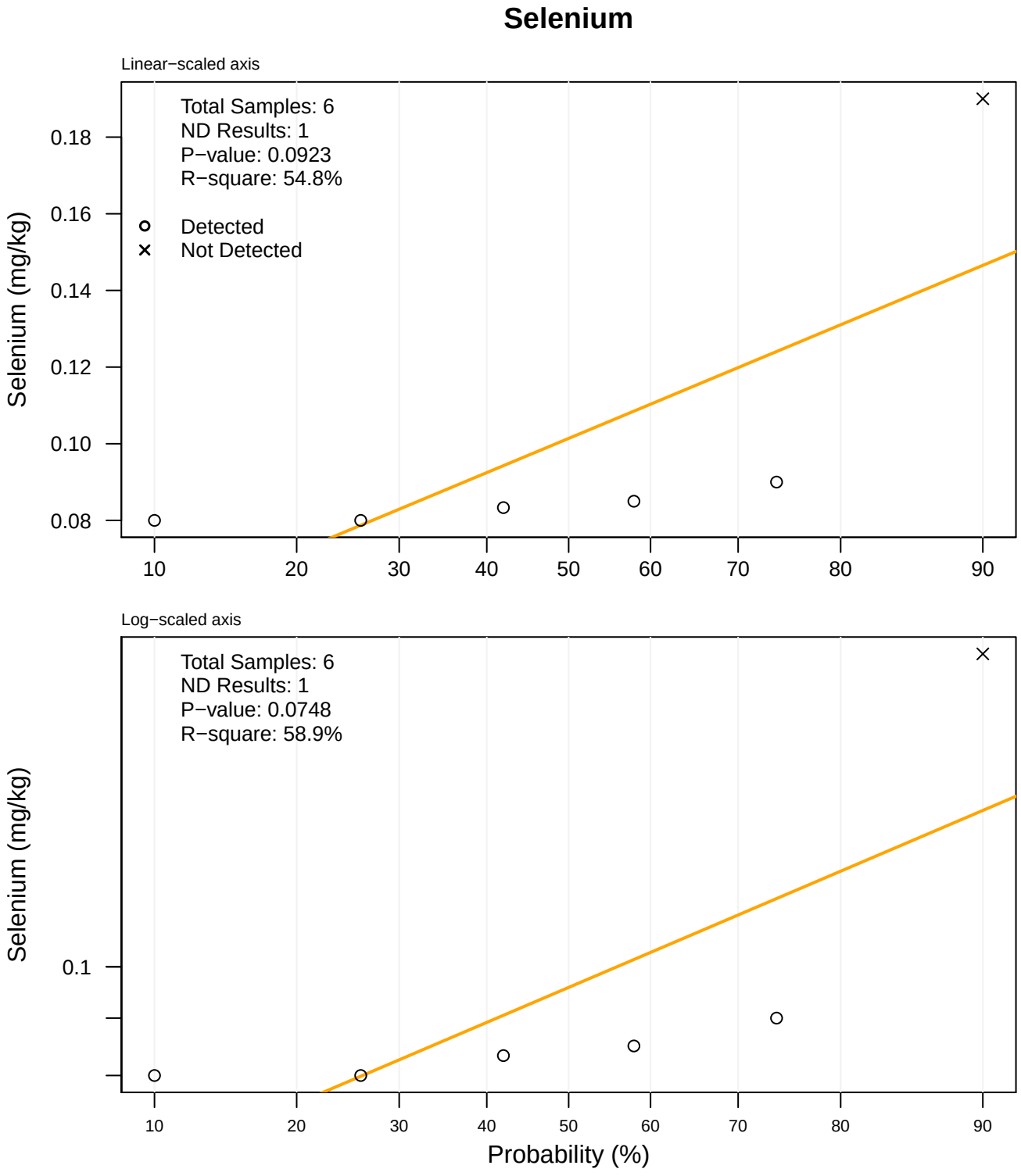


Figure C2−15. Boxplots of selenium concentrations by partial digestion methods

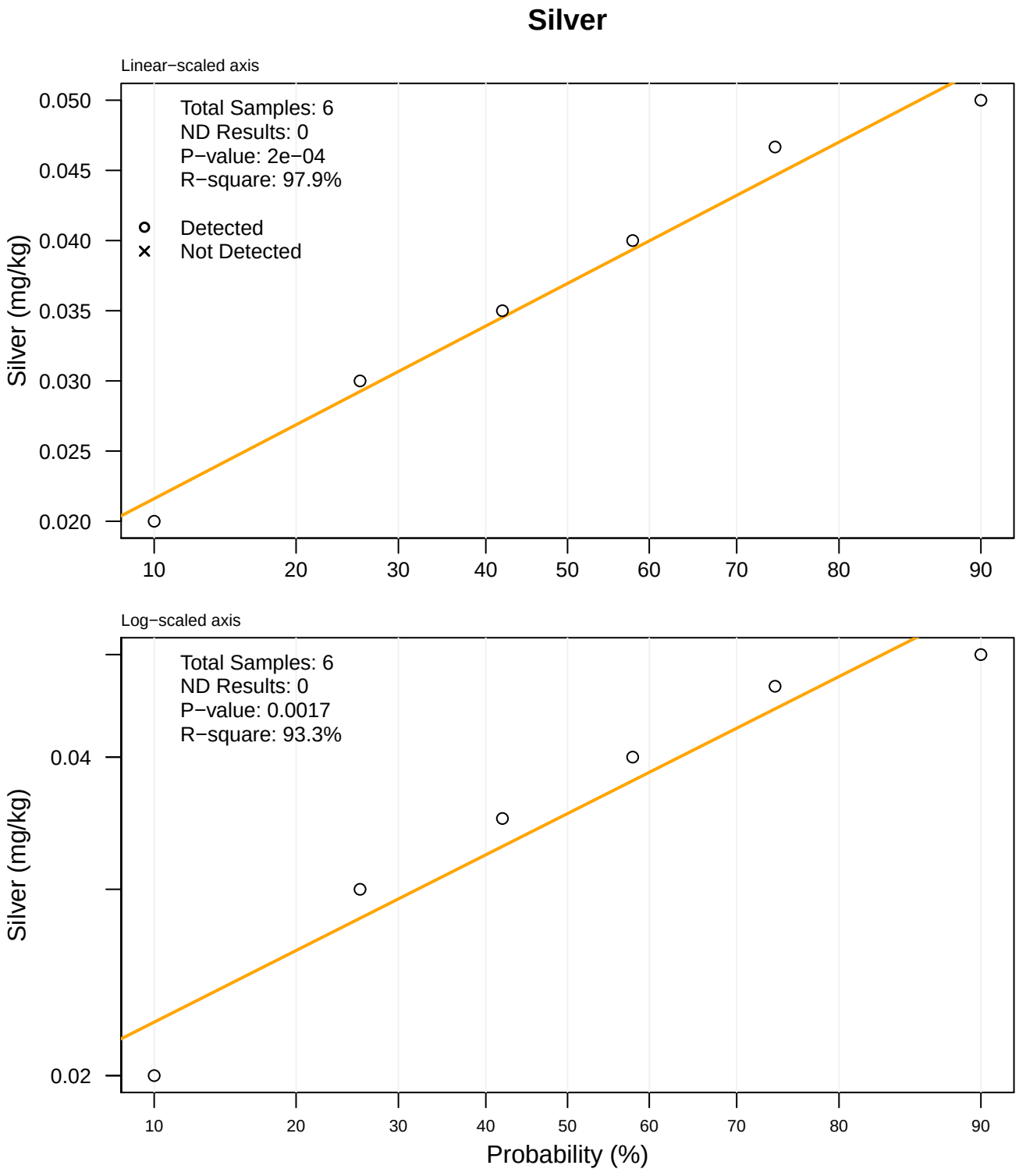


Figure C2−16. Boxplots of silver concentrations by partial digestion methods

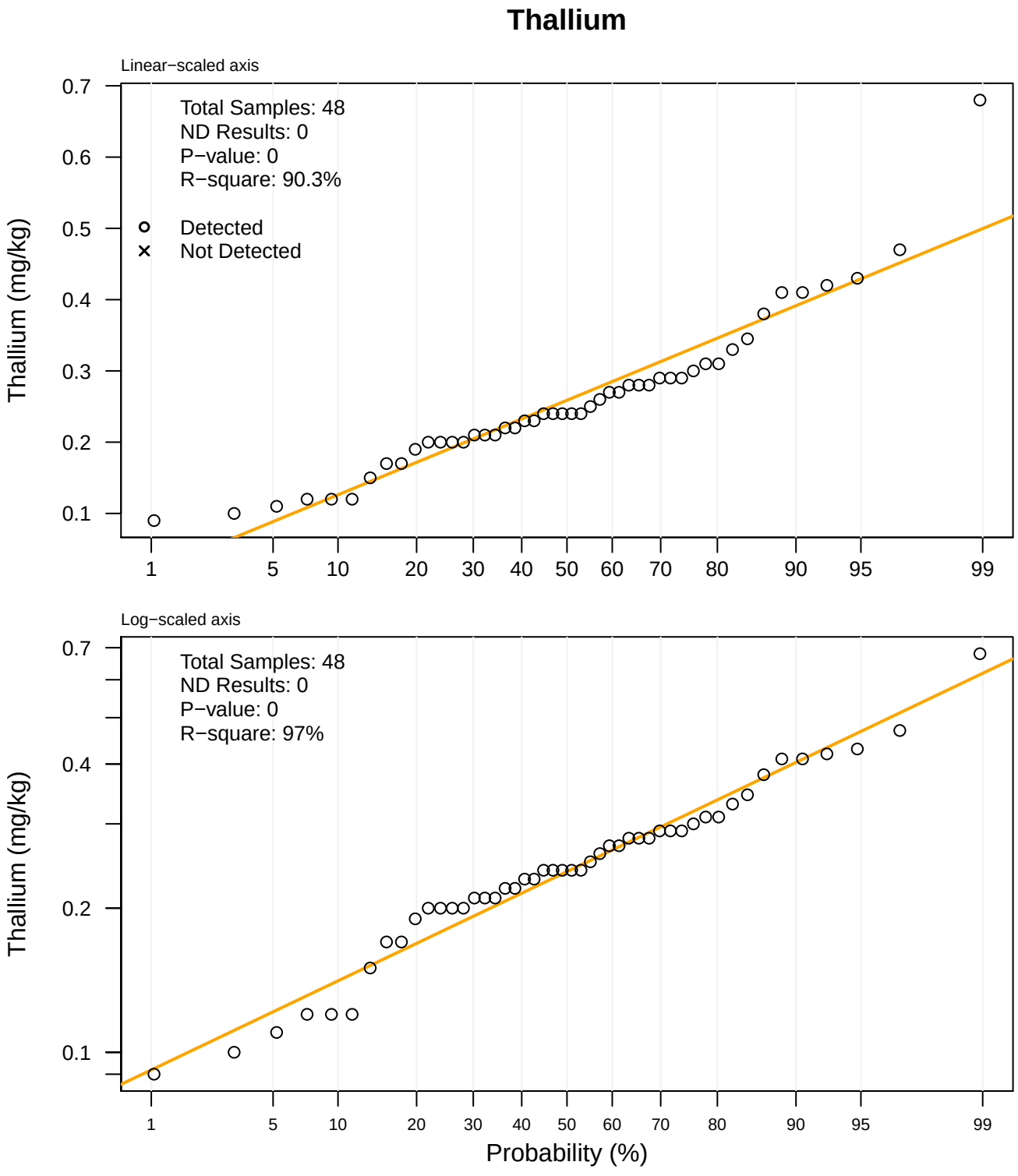


Figure C2−17. Boxplots of thallium concentrations by partial digestion methods

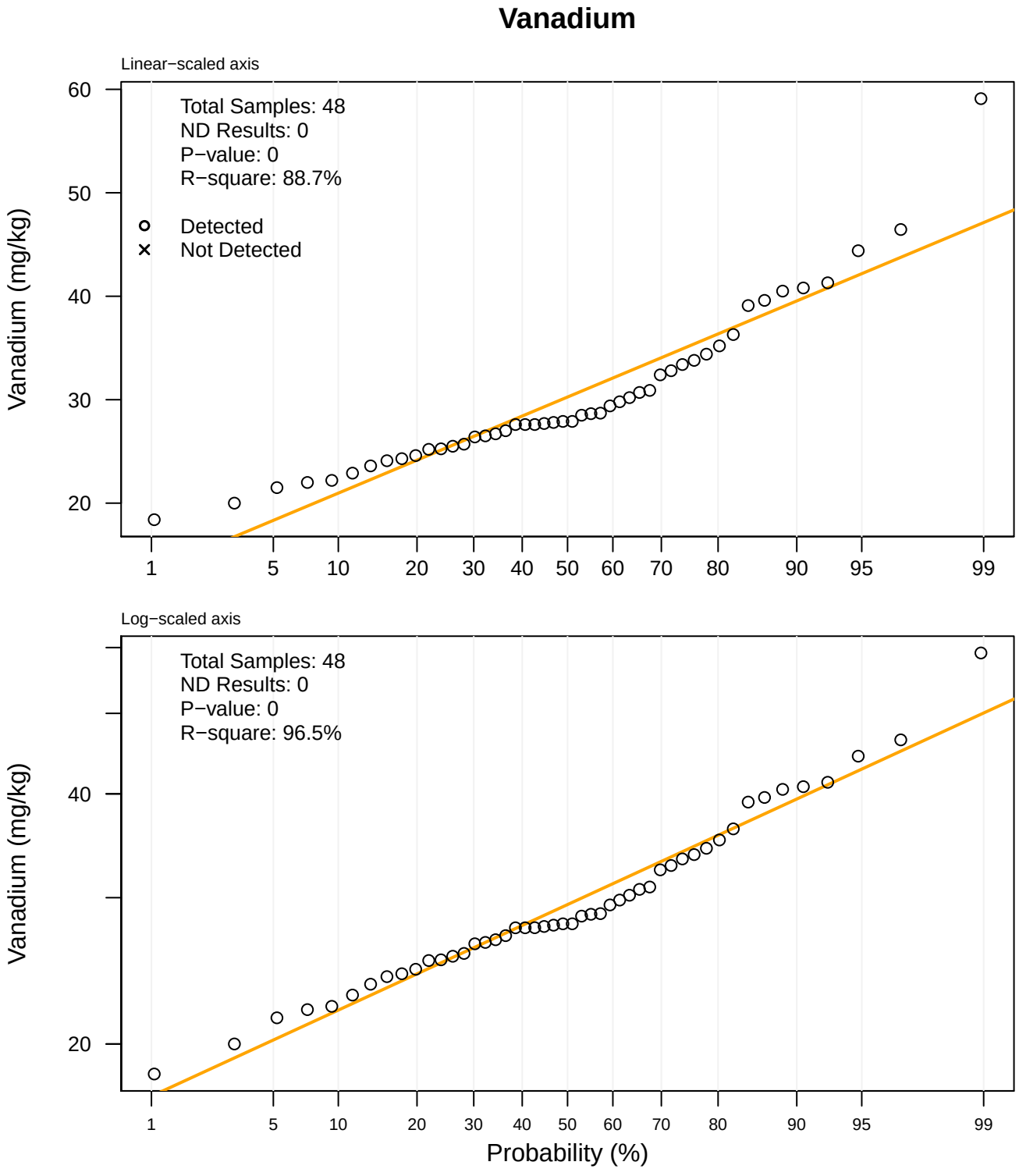


Figure C2−18. Boxplots of vanadium concentrations by partial digestion methods

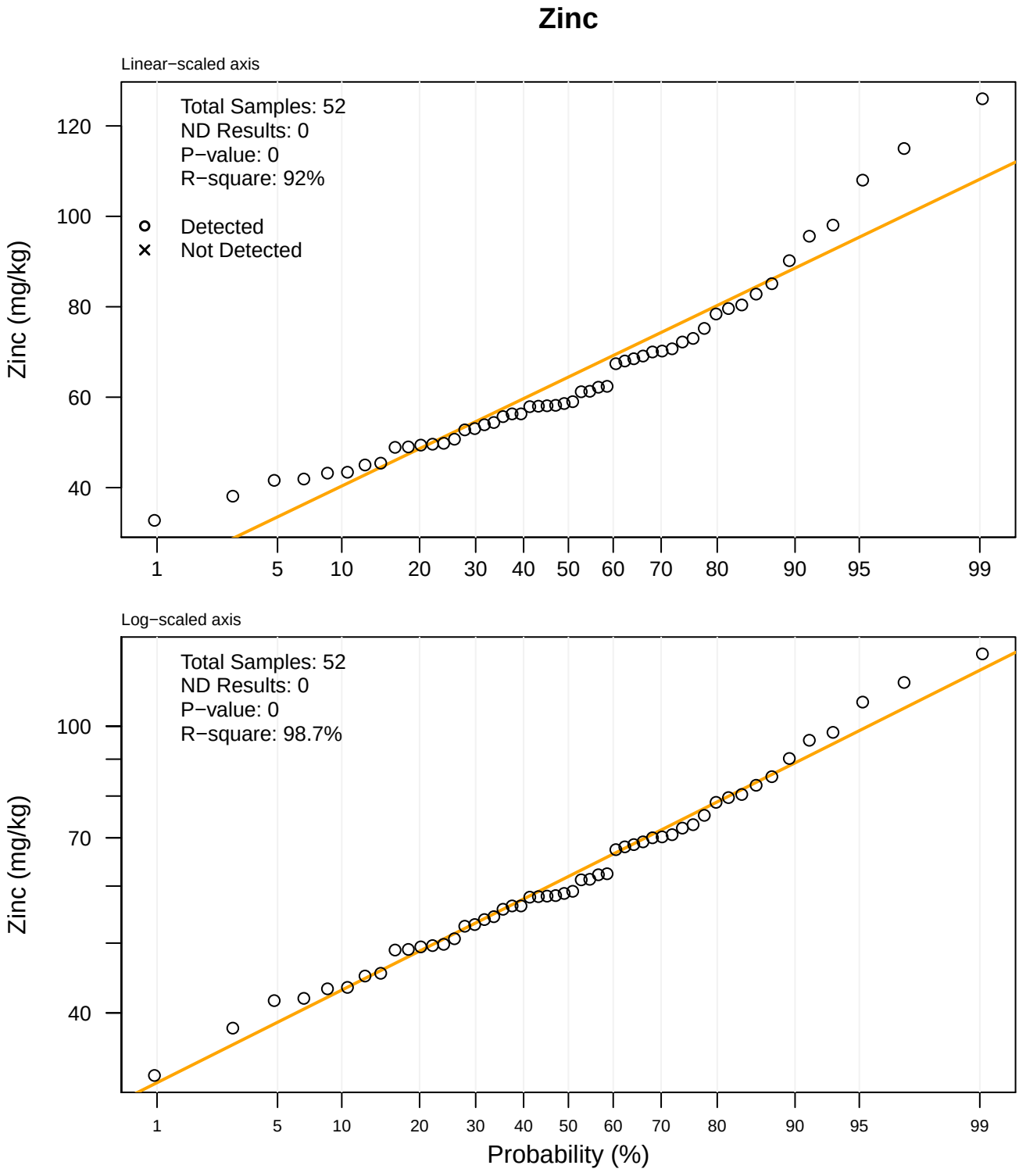


Figure C2−19. Boxplots of zinc concentrations by partial digestion methods

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, aluminum)

Mean	9.868
Standard Deviation	0.362
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	9.868	0.359	10.69	22	2.304	3.144	3.496	43914.51
2	9.851	0.346	9.117	52	2.12	3.134	3.486	9108.834
3	9.866	0.333	10.55	38	2.054	3.126	3.478	38177.44
4	9.852	0.322	9.269	51	1.814	3.116	3.476	10604.14
5	9.864	0.314	9.287	50	1.84	3.106	3.466	10796.75
6	9.876	0.305	9.292	47	1.916	3.098	3.455	10850.86
7	9.889	0.296	9.362	49	1.785	3.091	3.444	11637.64
8	9.901	0.288	9.367	15	1.854	3.083	3.432	11695.97
9	9.913	0.279	10.4	36	1.726	3.076	3.421	32859.63
10	9.902	0.272	10.38	23	1.754	3.068	3.41	32208.96

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Dixon's Outlier Test for meas_value_update (partial, antimony)

Number of Observations = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698

1. Observation Value 0.286666667 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.143

For 10% significance level, 0.286666667 is not an outlier.
For 5% significance level, 0.286666667 is not an outlier.
For 1% significance level, 0.286666667 is not an outlier.

2. Observation Value 0.17 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.171

For 10% significance level, 0.17 is not an outlier.
For 5% significance level, 0.17 is not an outlier.
For 1% significance level, 0.17 is not an outlier.

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, arsenic)

Mean	1.959
Standard Deviation	1.03
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	1.959	1.02	5.204	31	3.182	3.144	3.496	181.9988
2	1.896	0.931	4.589	40	2.893	3.134	3.486	98.39598
3	1.842	0.857	4.389	38	2.975	3.126	3.478	80.55982
4	1.79	0.782	3.683	41	2.422	3.116	3.476	39.76551
5	1.75	0.739	3.619	30	2.529	3.106	3.466	37.30025
6	1.711	0.693	3.061	39	1.948	3.098	3.455	21.3489
7	1.681	0.671	3.054	12	2.047	3.091	3.444	21.19997
8	1.651	0.645	3.006	14	2.101	3.083	3.432	20.20641
9	1.62	0.618	2.996	15	2.226	3.076	3.421	20.00536
10	1.588	0.587	2.907	23	2.245	3.068	3.41	18.30181

For 5% Significance Level, there is 1 Potential Outlier
Potential outliers is: 5.204

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, barium)

Mean	5.116
Standard Deviation	0.417
Number of data	48
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	5.116	0.413	6.068	22	2.308	3.11	3.46	431.8162
2	5.095	0.397	6.026	33	2.343	3.1	3.46	414.0555
3	5.075	0.376	5.881	27	2.141	3.09	3.45	358.1672
4	5.057	0.36	5.835	21	2.159	3.09	3.44	342.0647
5	5.04	0.344	5.799	16	2.208	3.08	3.43	329.9694
6	5.022	0.327	5.781	31	2.319	3.07	3.418	324.0831
7	5.004	0.309	5.69	36	2.224	3.06	3.406	295.8936
8	4.987	0.293	5.67	23	2.333	3.05	3.394	290.0345
9	4.97	0.275	5.549	30	2.106	3.04	3.382	256.9804
10	4.955	0.262	4.496	10	1.752	3.03	3.37	89.65778

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, beryllium)

Mean	-0.0671
Standard Deviation	0.455
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	-0.0671	0.45	1.099	27	2.589	3.144	3.496	3.001163
2	-0.09	0.428	-1.079	52	2.31	3.134	3.486	0.339935
3	-0.0702	0.408	-0.994	51	2.264	3.126	3.478	0.370093
4	-0.0514	0.39	-0.942	50	2.284	3.116	3.476	0.389847
5	-0.0328	0.371	-0.916	47	2.379	3.106	3.466	0.400116
6	-0.014	0.352	-0.755	48	2.108	3.098	3.455	0.470011
7	0.00209	0.337	-0.755	49	2.244	3.091	3.444	0.470011
8	0.0189	0.321	0.693	38	2.1	3.083	3.432	1.999706
9	0.00359	0.308	-0.616	20	2.014	3.076	3.421	0.540101
10	0.018	0.296	-0.598	45	2.081	3.068	3.41	0.54991

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, cadmium)

Mean	-1.478
Standard Deviation	0.577
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	-1.478	0.571	-3.219	42	3.048	3.144	3.496	0.039995
2	-1.444	0.527	0	44	2.74	3.134	3.486	1
3	-1.472	0.49	-2.659	17	2.424	3.126	3.478	0.070018
4	-1.448	0.463	-0.357	45	2.355	3.116	3.476	0.699772
5	-1.471	0.44	-2.526	39	2.398	3.106	3.466	0.079978
6	-1.448	0.416	-2.526	41	2.59	3.098	3.455	0.079978
7	-1.425	0.388	-0.431	31	2.563	3.091	3.444	0.649859
8	-1.447	0.362	-0.494	46	2.633	3.083	3.432	0.610181
9	-1.469	0.335	-0.528	36	2.807	3.076	3.421	0.589783
10	-1.491	0.306	-2.207	3	2.343	3.068	3.41	0.11003

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, chromium)

Mean	2.667
Standard Deviation	0.308
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	2.667	0.305	3.714	38	3.433	3.144	3.496	41.01755
2	2.646	0.273	1.974	19	2.466	3.134	3.486	7.199417
3	2.66	0.258	2.001	20	2.554	3.126	3.478	7.396449
4	2.673	0.242	3.281	36	2.51	3.116	3.476	26.60236
5	2.661	0.228	3.14	13	2.105	3.106	3.466	23.10387
6	2.65	0.219	3.059	40	1.866	3.098	3.455	21.30624
7	2.642	0.212	3.047	41	1.908	3.091	3.444	21.05209
8	2.633	0.206	2.991	35	1.74	3.083	3.432	19.90558
9	2.624	0.201	2.976	14	1.749	3.076	3.421	19.60922
10	2.616	0.196	2.976	31	1.837	3.068	3.41	19.60922

For 5% Significance Level, there is 1 Potential Outlier
Potential outliers is: 3.714

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, cobalt)

Mean	1.98
Standard Deviation	0.401
Number of data	48
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	1.98	0.397	3.077	40	2.766	3.11	3.46	21.69323
2	1.957	0.371	3.016	31	2.855	3.1	3.46	20.40949
3	1.934	0.339	2.976	38	3.071	3.09	3.45	19.60922
4	1.911	0.304	1.065	20	2.781	3.09	3.44	2.900839
5	1.93	0.279	2.701	41	2.769	3.08	3.43	14.89462
6	1.912	0.255	2.667	36	2.963	3.07	3.418	14.39671
7	1.894	0.229	2.398	27	2.203	3.06	3.406	11.00115
8	1.882	0.217	2.342	13	2.12	3.05	3.394	10.40202
9	1.87	0.207	2.342	35	2.281	3.04	3.382	10.40202
10	1.858	0.195	2.293	23	2.232	3.03	3.37	9.904607

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, copper)

Mean	2.846
Standard Deviation	0.43
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	2.846	0.425	3.848	31	2.356	3.144	3.496	46.89917
2	2.826	0.41	3.694	38	2.119	3.134	3.486	40.20535
3	2.809	0.394	3.681	40	2.213	3.126	3.478	39.68606
4	2.791	0.378	3.658	16	2.298	3.116	3.476	38.7837
5	2.773	0.36	3.547	36	2.153	3.106	3.466	34.70903
6	2.756	0.345	3.478	41	2.095	3.098	3.455	32.39487
7	2.74	0.331	2.046	43	2.099	3.091	3.444	7.736892
8	2.756	0.318	3.408	44	2.053	3.083	3.432	30.20477
9	2.741	0.305	3.374	13	2.075	3.076	3.421	29.19507
10	2.726	0.292	2.116	19	2.086	3.068	3.41	8.297879

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, iron)

Mean	9.867
Standard Deviation	0.234
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	9.867	0.232	10.59	38	3.125	3.144	3.496	39735.49
2	9.853	0.212	10.41	40	2.629	3.134	3.486	33189.87
3	9.842	0.199	10.37	31	2.64	3.126	3.478	31888.48
4	9.831	0.186	10.26	36	2.331	3.116	3.476	28566.79
5	9.822	0.177	9.425	20	2.247	3.106	3.466	12394.4
6	9.831	0.168	10.19	27	2.124	3.098	3.455	26635.49
7	9.823	0.162	10.16	41	2.086	3.091	3.444	25848.3
8	9.816	0.155	10.12	14	1.98	3.083	3.432	24834.77
9	9.809	0.15	9.51	52	1.993	3.076	3.421	13493.99
10	9.816	0.144	9.529	43	1.991	3.068	3.41	13752.83

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, lead)

Mean	2.67
Standard Deviation	0.309
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	2.67	0.306	2.041	39	2.057	3.144	3.496	7.698304
2	2.682	0.298	2.068	52	2.057	3.134	3.486	7.908989
3	2.694	0.288	2.099	51	2.065	3.126	3.478	8.158008
4	2.706	0.278	2.152	35	1.996	3.116	3.476	8.602045
5	2.718	0.269	3.203	31	1.805	3.106	3.466	24.60624
6	2.708	0.262	3.195	18	1.86	3.098	3.455	24.41017
7	2.697	0.254	2.25	47	1.757	3.091	3.444	9.487736
8	2.707	0.248	2.282	43	1.712	3.083	3.432	9.796253
9	2.717	0.242	2.295	42	1.743	3.076	3.421	9.924436
10	2.726	0.236	2.303	29	1.796	3.068	3.41	10.00415

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, manganese)

Mean	6.36
Standard Deviation	0.372
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	6.36	0.368	7.444	27	2.942	3.144	3.496	1709.575
2	6.339	0.342	7.115	37	2.266	3.134	3.486	1230.284
3	6.323	0.327	7.048	21	2.213	3.126	3.478	1150.555
4	6.309	0.313	5.685	39	1.989	3.116	3.476	294.4178
5	6.322	0.303	5.724	51	1.973	3.106	3.466	306.127
6	6.334	0.293	5.727	52	2.073	3.098	3.455	307.0467
7	6.347	0.282	5.802	4	1.935	3.091	3.444	330.9608
8	6.36	0.273	6.867	32	1.861	3.083	3.432	960.064
9	6.348	0.264	6.865	19	1.955	3.076	3.421	958.1458
10	6.336	0.255	6.856	43	2.04	3.068	3.41	949.5612

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, molybdenum)

Mean	-0.418
Standard Deviation	0.715
Number of data	48
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	-0.418	0.708	2.186	40	3.68	3.11	3.46	8.899544
2	-0.474	0.61	1.253	18	2.831	3.1	3.46	3.50083
3	-0.511	0.559	1.131	31	2.938	3.09	3.45	3.098754
4	-0.548	0.507	1.065	30	3.181	3.09	3.44	2.900839
5	-0.584	0.448	0.438	8	2.281	3.08	3.43	1.549605
6	-0.608	0.425	0.405	27	2.387	3.07	3.418	1.499303
7	-0.632	0.399	0.182	2	2.042	3.06	3.406	1.199614
8	-0.652	0.382	0.182	19	2.183	3.05	3.394	1.199614
9	-0.673	0.363	0.182	36	2.358	3.04	3.382	1.199614
10	-0.695	0.339	-1.386	42	2.036	3.03	3.37	0.250074

For 5% significance level, there are 4 Potential Outliers
Potential outliers are:
2.186, 1.253, 1.131, 1.065

For 1% Significance Level, there is 1 Potential Outlier
Potential outliers is: 2.186

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, nickel)

Mean	2.568
Standard Deviation	0.415
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	2.568	0.411	3.77	31	2.925	3.144	3.496	43.38006
2	2.544	0.383	3.555	40	2.644	3.134	3.486	34.98782
3	2.524	0.358	3.532	38	2.818	3.126	3.478	34.19228
4	2.503	0.33	3.506	36	3.035	3.116	3.476	33.31474
5	2.482	0.299	1.723	19	2.538	3.106	3.466	5.601307
6	2.498	0.281	1.74	20	2.701	3.098	3.455	5.697343
7	2.515	0.26	3.118	22	2.322	3.091	3.444	22.60113
8	2.502	0.246	3.016	23	2.089	3.083	3.432	20.40949
9	2.49	0.236	3.016	35	2.229	3.076	3.421	20.40949
10	2.478	0.224	2.929	13	2.012	3.068	3.41	18.70891

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Dixon's Outlier Test for LNmeas_value_update (partial, selenium)

Number of Observations = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698

	back-transform
1. Observation Value -1.66073120682165 is a Potential Outlier (Upper Tail)?	0.19

Test Statistic: 0.864

For 10% significance level, -1.66073120682165 is an outlier.
For 5% significance level, -1.66073120682165 is an outlier.
For 1% significance level, -1.66073120682165 is an outlier.

	back-transform
2. Observation Value -2.52572864430826 is a Potential Outlier (Lower Tail)?	12.5

Test Statistic: 0.000

For 10% significance level, -2.52572864430826 is not an outlier.
For 5% significance level, -2.52572864430826 is not an outlier.
For 1% significance level, -2.52572864430826 is not an outlier.

Outlier Tests for Selected Uncensored Variables

Dixon's Outlier Test for meas_value_update (partial, silver)

Number of Observations = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698

1. Observation Value 0.05 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.111

For 10% significance level, 0.05 is not an outlier.
For 5% significance level, 0.05 is not an outlier.
For 1% significance level, 0.05 is not an outlier.

2. Observation Value 0.02 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.333

For 10% significance level, 0.02 is not an outlier.
For 5% significance level, 0.02 is not an outlier.
For 1% significance level, 0.02 is not an outlier.

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, thallium)

Mean	-1.434
Standard Deviation	0.415
Number of data	48
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	-1.434	0.411	-0.386	38	2.551	3.11	3.46	0.679771
2	-1.456	0.389	-2.408	48	2.445	3.1	3.46	0.089995
3	-1.435	0.367	-2.303	47	2.366	3.09	3.45	0.099959
4	-1.416	0.346	-2.207	43	2.284	3.09	3.44	0.11003
5	-1.398	0.329	-2.12	44	2.199	3.08	3.43	0.120032
6	-1.381	0.313	-2.12	45	2.364	3.07	3.418	0.120032
7	-1.363	0.294	-2.12	46	2.573	3.06	3.406	0.120032
8	-1.345	0.272	-0.755	31	2.169	3.05	3.394	0.470011
9	-1.36	0.258	-1.897	15	2.08	3.04	3.382	0.150018
10	-1.346	0.246	-0.844	40	2.037	3.03	3.37	0.429987

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, vanadium)

Mean	3.382
Standard Deviation	0.232
Number of data	48
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	3.382	0.229	4.079	38	3.04	3.11	3.46	59.08635
2	3.367	0.21	3.838	41	2.244	3.1	3.46	46.43252
3	3.357	0.2	2.912	48	2.223	3.09	3.45	18.39355
4	3.367	0.191	3.793	36	2.237	3.09	3.44	44.38937
5	3.357	0.181	3.721	27	2.006	3.08	3.43	41.30568
6	3.349	0.174	3.709	40	2.064	3.07	3.418	40.81297
7	3.34	0.167	3.701	17	2.161	3.06	3.406	40.48777
8	3.331	0.159	3.679	31	2.186	3.05	3.394	39.60677
9	3.323	0.151	3.666	13	2.277	3.04	3.382	39.09521
10	3.314	0.142	2.996	20	2.24	3.03	3.37	20.00536

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, zinc)

Mean	4.125
Standard Deviation	0.285
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	4.125	0.282	4.836	36	2.525	3.144	3.496	125.9645
2	4.111	0.269	4.745	20	2.359	3.134	3.486	115.0078
3	4.098	0.256	3.489	39	2.384	3.126	3.478	32.75318
4	4.111	0.243	4.682	33	2.356	3.116	3.476	107.9858
5	4.099	0.23	4.585	11	2.114	3.106	3.466	98.00319
6	4.089	0.221	4.56	27	2.133	3.098	3.455	95.58348
7	4.078	0.212	3.64	41	2.067	3.091	3.444	38.09184
8	4.088	0.204	4.502	5	2.033	3.083	3.432	90.19735
9	4.079	0.196	4.444	21	1.865	3.076	3.421	85.11472
10	4.07	0.19	4.416	7	1.825	3.068	3.41	82.76456

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Background Statistics for Data Sets with Non-Detects - Outliers Excluded

meas_value_update (partial, arsenic) - 1 outlier excluded

General Statistics			
Total Number of Observations	51	Number of Distinct Observations	44
Minimum	1.7	First Quartile	3.45
Second Largest	80.6	Median	5.3
Maximum	98.4	Third Quartile	9.3
Mean	11.56	SD	17.96
Coefficient of Variation	1.553	Skewness	3.634
Mean of logged Data	1.896	SD of logged Data	0.931
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965
Normal GOF Test			
Shapiro Wilk Test Statistic	0.528	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.313	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.123	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	48.45	90% Percentile (z)	34.58
95% UPL (t)	41.96	95% Percentile (z)	41.11
95% USL	64.81	99% Percentile (z)	53.35
Gamma GOF Test			
A-D Test Statistic	3.128	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.779	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.23	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.04	k star (bias corrected MLE)	0.992
Theta hat (MLE)	11.12	Theta star (bias corrected MLE)	11.66
nu hat (MLE)	106.1	nu star (bias corrected)	101.2
MLE Mean (bias corrected)	11.56	MLE Sd (bias corrected)	11.61
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	33.22	90% Percentile	26.68
95% Hawkins Wixley (HW) Approx. Gamma UPL	32.64	95% Percentile	34.74
95% WH Approx. Gamma UTL with 95% Coverage	42.06	99% Percentile	53.47
95% HW Approx. Gamma UTL with 95% Coverage	42.13		
95% WH USL	71.02	95% HW USL	75.17
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.918	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.00155	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.142	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.123	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	45.05	90% Percentile (z)	21.95
95% UPL (t)	32.18	95% Percentile (z)	30.79
95% USL	105.2	99% Percentile (z)	58.07
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	50	95% UTL with 95% Coverage	80.6
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by UTL	0.731
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	89.5	95% BCA Bootstrap UTL with 95% Coverage	80.6
95% UPL	56.09	90% Percentile	21.2
90% Chebyshev UPL	65.97	95% Percentile	38.53
95% Chebyshev UPL	90.62	99% Percentile	89.5
95% USL	98.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects - Outliers Excluded

meas_value_update (partial, arsenic) - 5 outliers excluded

General Statistics			
Total Number of Observations	47	Number of Distinct Observations	40
Minimum	1.7	First Quartile	3.26
Second Largest	21.2	Median	5.2
Maximum	21.35	Third Quartile	8.38
Mean	7.101	SD	5.575
Coefficient of Variation	0.785	Skewness	1.502
Mean of logged Data	1.711	SD of logged Data	0.693
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.074	d2max (for USL)	2.933
Normal GOF Test			
Shapiro Wilk Test Statistic	0.778	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.946	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.209	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.128	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	18.66	90% Percentile (z)	14.25
95% UPL (t)	16.56	95% Percentile (z)	16.27
95% USL	23.45	99% Percentile (z)	20.07
Gamma GOF Test			
A-D Test Statistic	1.335	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.761	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.128	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.131	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	2.154	k star (bias corrected MLE)	2.031
Theta hat (MLE)	3.296	Theta star (bias corrected MLE)	3.497
nu hat (MLE)	202.5	nu star (bias corrected)	190.9
MLE Mean (bias corrected)	7.101	MLE Sd (bias corrected)	4.983
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	16.87	90% Percentile	13.76
95% Hawkins Wixley (HW) Approx. Gamma UPL	17.04	95% Percentile	16.76
95% WH Approx. Gamma UTL with 95% Coverage	20.37	99% Percentile	23.41
95% HW Approx. Gamma UTL with 95% Coverage	20.87		
95% WH USL	30.07	95% HW USL	31.97
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.942	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.946	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.106	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.128	Data appear Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	23.29	90% Percentile (z)	13.45
95% UPL (t)	17.93	95% Percentile (z)	17.3
95% USL	42.23	99% Percentile (z)	27.74
Nonparametric Distribution Free Background Statistics			
Data appear Approximate Gamma Distribution at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	46	95% UTL with 95% Coverage	21.2
Approx, f used to compute achieved CC	1.211	Approximate Actual Confidence Coefficient achieved by UTL	0.688
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	21.31	95% BCA Bootstrap UTL with 95% Coverage	21.2
95% UPL	20.8	90% Percentile	17.7
90% Chebyshev UPL	24	95% Percentile	20.14
95% Chebyshev UPL	31.66	99% Percentile	21.28
95% USL	21.35		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects - Outliers Excluded

meas_value_update (partial, chromium) - 1 outlier excluded

General Statistics			
Total Number of Observations	51	Number of Distinct Observations	47
Minimum	7.2	First Quartile	11.6
Second Largest	23.1	Median	14.1
Maximum	26.6	Third Quartile	17.6
Mean	14.62	SD	4.008
Coefficient of Variation	0.274	Skewness	0.682
Mean of logged Data	2.646	SD of logged Data	0.273
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965
Normal GOF Test			
Shapiro Wilk Test Statistic	0.959	Normal GOF Test	
5% Shapiro Wilk P Value	0.13	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.11	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.123	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	22.85	90% Percentile (z)	19.76
95% UPL (t)	21.41	95% Percentile (z)	21.22
95% USL	26.51	99% Percentile (z)	23.95
Gamma GOF Test			
A-D Test Statistic	0.385	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.749	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0773	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.124	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	13.98	k star (bias corrected MLE)	13.18
Theta hat (MLE)	1.046	Theta star (bias corrected MLE)	1.11
nu hat (MLE)	1426	nu star (bias corrected)	1344
MLE Mean (bias corrected)	14.62	MLE Sd (bias corrected)	4.029
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	21.91	90% Percentile	19.96
95% Hawkins Wixley (HW) Approx. Gamma UPL	22.01	95% Percentile	21.82
95% WH Approx. Gamma UTL with 95% Coverage	23.84	99% Percentile	25.59
95% HW Approx. Gamma UTL with 95% Coverage	24.02		
95% WH USL	29.17	95% HW USL	29.69
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.98	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.73	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0748	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.123	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	24.69	90% Percentile (z)	20
95% UPL (t)	22.37	95% Percentile (z)	22.08
95% USL	31.65	99% Percentile (z)	26.59
Nonparametric Distribution Free Background Statistics			
Data appear Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	50	95% UTL with 95% Coverage	23.1
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by UTL	0.731
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	24.85	95% BCA Bootstrap UTL with 95% Coverage	23.95
95% UPL	22.02	90% Percentile	19.6
90% Chebyshev UPL	26.76	95% Percentile	21.18
95% Chebyshev UPL	32.26	99% Percentile	24.85
95% USL	26.6		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects - Outliers Excluded

meas_value_update (partial, molybdenum) - 4 outliers excluded

General Statistics			
Total Number of Observations	44	Number of Distinct Observations	36
Minimum	0.25	First Quartile	0.42
Second Largest	1.5	Median	0.515
Maximum	1.55	Third Quartile	0.76
Mean	0.619	SD	0.315
Coefficient of Variation	0.508	Skewness	1.47
Mean of logged Data	-0.584	SD of logged Data	0.448
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.091	d2max (for USL)	2.906
Normal GOF Test			
Shapiro Wilk Test Statistic	0.84	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.944	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.188	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.132	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	1.277	90% Percentile (z)	1.022
95% UPL (t)	1.154	95% Percentile (z)	1.137
95% USL	1.533	99% Percentile (z)	1.351
Gamma GOF Test			
A-D Test Statistic	1.034	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.14	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.134	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	4.923	k star (bias corrected MLE)	4.602
Theta hat (MLE)	0.126	Theta star (bias corrected MLE)	0.135
nu hat (MLE)	433.2	nu star (bias corrected)	405
MLE Mean (bias corrected)	0.619	MLE Sd (bias corrected)	0.289
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	1.166	90% Percentile	1.006
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.171	95% Percentile	1.157
95% WH Approx. Gamma UTL with 95% Coverage	1.342	99% Percentile	1.479
95% HW Approx. Gamma UTL with 95% Coverage	1.358		
95% WH USL	1.766	95% HW USL	1.819
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.956	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.944	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.11	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.132	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	1.424	90% Percentile (z)	0.99
95% UPL (t)	1.195	95% Percentile (z)	1.166
95% USL	2.052	99% Percentile (z)	1.582
Nonparametric Distribution Free Background Statistics			
Data appear Lognormal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	44	95% UTL with 95% Coverage	1.55
Approx, f used to compute achieved CC	2.316	Approximate Actual Confidence Coefficient achieved by UTL	0.895
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1.543	95% BCA Bootstrap UTL with 95% Coverage	1.2
95% UPL	1.425	90% Percentile	1.134
90% Chebyshev UPL	1.574	95% Percentile	1.2
95% Chebyshev UPL	2.006	99% Percentile	1.529
95% USL	1.55		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects - Outliers Excluded

meas_value_update (partial, selenium) - 1 outlier excluded

General Statistics

Total Number of Observations	5	Number of Distinct Observations	4
Minimum	0.08	First Quartile	0.08
Second Largest	0.085	Median	0.0833
Maximum	0.09	Third Quartile	0.085
Mean	0.0837	SD	0.00415
Coefficient of Variation	0.0496	Skewness	0.92
Mean of logged Data	-2.482	SD of logged Data	0.049

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	4.203	d2max (for USL)	1.671

Normal GOF Test

Shapiro Wilk Test Statistic	0.895	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.762	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.212	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.343	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.101	90% Percentile (z)	0.089
95% UPL (t)	0.0934	95% Percentile (z)	0.0905
95% USL	0.0906	99% Percentile (z)	0.0933

Gamma GOF Test

A-D Test Statistic	0.352	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.678	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.24	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.357	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			

Gamma Statistics

k hat (MLE)	516.6	k star (bias corrected MLE)	206.8
Theta hat (MLE)	1.62E-04	Theta star (bias corrected MLE)	4.05E-04
nu hat (MLE)	5166	nu star (bias corrected)	2068
MLE Mean (bias corrected)	0.0837	MLE Sd (bias corrected)	0.00582

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0936	90% Percentile	0.0912
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0936	95% Percentile	0.0935
95% WH Approx. Gamma UTL with 95% Coverage	0.102	99% Percentile	0.0978
95% HW Approx. Gamma UTL with 95% Coverage	0.102		
95% WH USL	0.0907	95% HW USL	0.0907

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.899	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.762	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.215	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.343	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.103	90% Percentile (z)	0.089
95% UPL (t)	0.0937	95% Percentile (z)	0.0906
95% USL	0.0907	99% Percentile (z)	0.0937

Nonparametric Distribution Free Background Statistics
Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	5	95% UTL with 95% Coverage	0.09
Approx, f used to compute achieved CC	0.263	Approximate Actual Confidence Coefficient achieved by UTL	0.226
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.09	95% BCA Bootstrap UTL with 95% Coverage	0.09
95% UPL	0.09	90% Percentile	0.088
90% Chebyshev UPL	0.0973	95% Percentile	0.089
95% Chebyshev UPL	0.103	99% Percentile	0.0898
95% USL	0.09		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Attachment C-3

ProUCL Output and QQ-Plots for Mercury Results

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (mercury)

General Statistics

Total Number of Observations	104	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	79	Number of Non-Detects	25
Number of Distinct Detects	22	Number of Distinct Non-Detects	2
Minimum Detect	0.007	Minimum Non-Detect	0.02
Maximum Detect	2.81	Maximum Non-Detect	0.06
Variance Detected	0.0977	Percent Non-Detects	24.04%
Mean Detected	0.081	SD Detected	0.313
Mean of Detected Logged Data	-3.266	SD of Detected Logged Data	0.875

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.917	d2max (for USL)	3.223

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.179	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.412	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0998	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0638	KM SD	0.272
95% UTL95% Coverage	0.586	95% KM UPL (t)	0.518
90% KM Percentile (z)	0.413	95% KM Percentile (z)	0.512
99% KM Percentile (z)	0.698	95% KM USL	0.942

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0641	SD	0.274
95% UTL95% Coverage	0.589	95% UPL (t)	0.521
90% Percentile (z)	0.415	95% Percentile (z)	0.514
99% Percentile (z)	0.701	95% USL	0.946

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	7.758	Anderson-Darling GOF Test	
5% A-D Critical Value	0.791	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.234	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.104	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.79	k star (bias corrected MLE)	0.768
Theta hat (MLE)	0.103	Theta star (bias corrected MLE)	0.105
nu hat (MLE)	124.8	nu star (bias corrected)	121.4
MLE Mean (bias corrected)	0.081		
MLE Sd (bias corrected)	0.0924	95% Percentile of Chisquare (2kstar)	5.057

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.007	Mean	0.0639
Maximum	2.81	Median	0.03
SD	0.274	CV	4.282
k hat (MLE)	0.718	k star (bias corrected MLE)	0.704
Theta hat (MLE)	0.089	Theta star (bias corrected MLE)	0.0908
nu hat (MLE)	149.4	nu star (bias corrected)	146.5
MLE Mean (bias corrected)	0.0639	MLE Sd (bias corrected)	0.0762
95% Percentile of Chisquare (2kstar)	4.783	90% Percentile	0.16
95% Percentile	0.217	99% Percentile	0.353

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.203	0.186	95% Approx. Gamma UPL	0.169	0.153
95% Gamma USL	0.455	0.446			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0638	SD (KM)	0.272
Variance (KM)	0.0742	SE of Mean (KM)	0.0269
k hat (KM)	0.0549	k star (KM)	0.0597
nu hat (KM)	11.42	nu star (KM)	12.42
theta hat (KM)	1.163	theta star (KM)	1.069
80% gamma percentile (KM)	0.0152	90% gamma percentile (KM)	0.12
95% gamma percentile (KM)	0.357	99% gamma percentile (KM)	1.29

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.202	0.186	95% Approx. Gamma UPL	0.168	0.154
95% KM Gamma Percentile	0.165	0.151	95% Gamma USL	0.456	0.449

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.912	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	9.41E-06	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.126	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0998	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.064	Mean in Log Scale	-3.603
SD in Original Scale	0.274	SD in Log Scale	0.999
95% UTL95% Coverage	0.185	95% BCA UTL95% Coverage	0.12
95% Bootstrap (%) UTL95% Coverage	0.137	95% UPL (t)	0.144
90% Percentile (z)	0.0979	95% Percentile (z)	0.141
99% Percentile (z)	0.278	95% USL	0.681

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.607	95% KM UTL (Lognormal)95% Coverage	0.176
KM SD of Logged Data	0.976	95% KM UPL (Lognormal)	0.138
95% KM Percentile Lognormal (z)	0.135	95% KM USL (Lognormal)	0.631

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0641	Mean in Log Scale	-3.578
SD in Original Scale	0.274	SD in Log Scale	0.949
95% UTL95% Coverage	0.172	95% UPL (t)	0.136
90% Percentile (z)	0.0943	95% Percentile (z)	0.133
99% Percentile (z)	0.254	95% USL	0.595

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	102	95% UTL with95% Coverage	0.14
Approx, f used to compute achieved CC	1.789	Approximate Actual Confidence Coefficient achieved by UT	0.897
Approximate Sample Size needed to achieve specified CC	124	95% UPL	0.118
95% USL	2.81	95% KM Chebyshev UPL	1.257

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

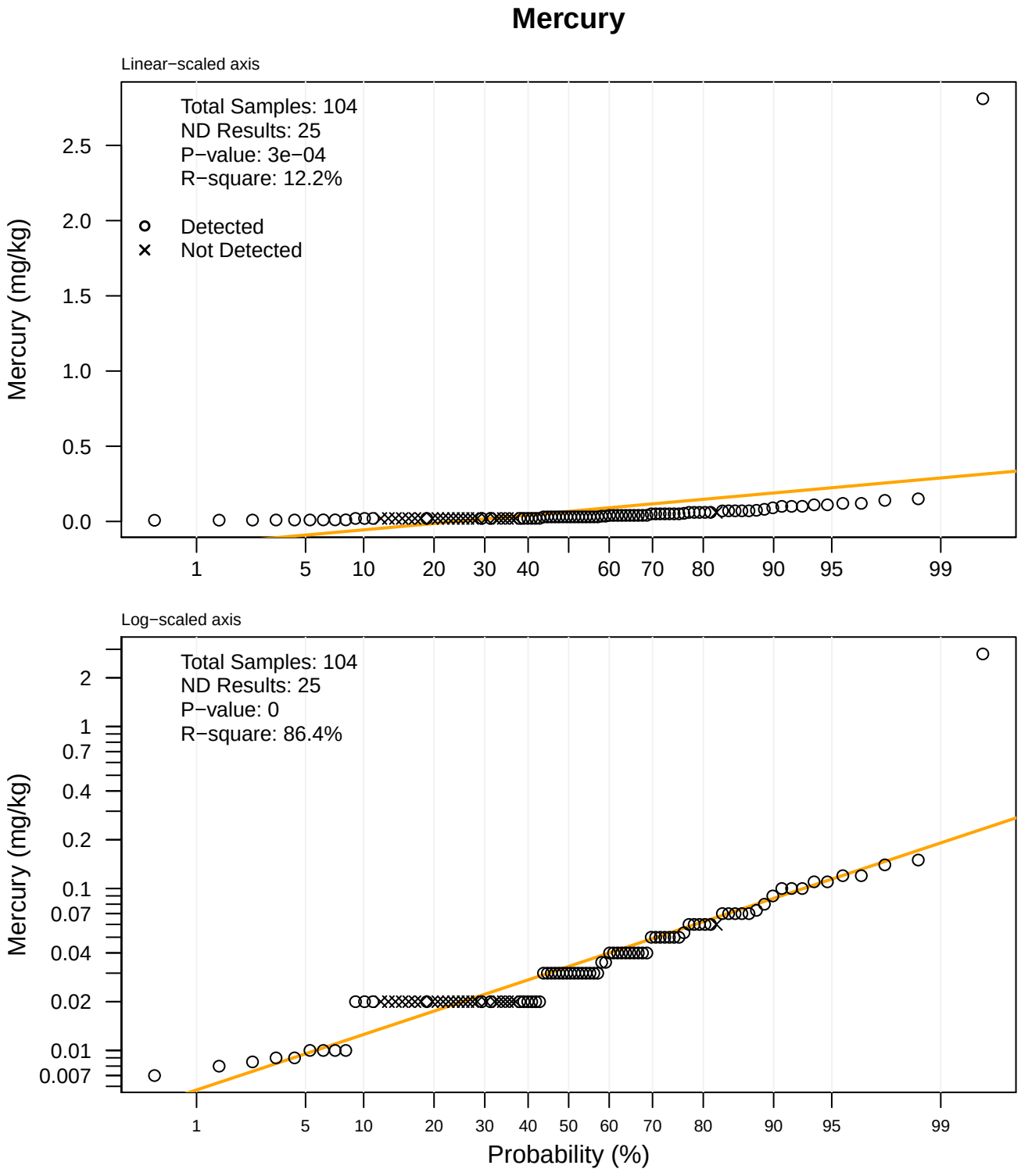


Figure C3−1. Boxplots of mercury concentrations

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (mercury)

Total N	104
Number NDs	25
Number Detects	79
Mean of Detects	-3.266
SD of Detects	0.875
Number of data	79
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	-3.266	0.87	1.033	1	4.945	3.305	3.665	2.80948165
2	-3.321	0.73	-4.962	79	2.248	3.295	3.665	0.00699892
3	-3.3	0.71	-4.828	78	2.153	3.295	3.655	0.00800251
4	-3.28	0.692	-4.768	77	2.15	3.285	3.654	0.00849736
5	-3.26	0.675	-4.711	75	2.15	3.285	3.645	0.00899578
6	-3.241	0.657	-4.711	76	2.236	3.279	3.641	0.00899578
7	-3.22	0.638	-4.605	71	2.169	3.273	3.637	0.0100017
8	-3.201	0.621	-4.605	72	2.26	3.267	3.632	0.0100017
9	-3.181	0.602	-4.605	73	2.363	3.261	3.628	0.0100017
10	-3.161	0.582	-4.605	74	2.482	3.255	3.624	0.0100017

For 5% Significance Level, there is 1 Potential Outlier
Therefore, Observation 1.033 is a Potential Statistical Outlier

For 1% Significance Level, there is 1 Potential Outlier

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (mercury) - 1 outlier excluded

General Statistics

Total Number of Observations	103	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	78	Number of Non-Detects	25
Number of Distinct Detects	21	Number of Distinct Non-Detects	2
Minimum Detect	0.007	Minimum Non-Detect	0.02
Maximum Detect	0.15	Maximum Non-Detect	0.06
Variance Detected	0.00104	Percent Non-Detects	24.27%
Mean Detected	0.046	SD Detected	0.0323
Mean of Detected Logged Data	-3.321	SD of Detected Logged Data	0.73

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.919	d2max (for USL)	3.22

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.867	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	1.91E-09	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.189	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.1	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0372	KM SD	0.032
95% UTL95% Coverage	0.0987	95% KM UPL (t)	0.0906
90% KM Percentile (z)	0.0782	95% KM Percentile (z)	0.0899
99% KM Percentile (z)	0.112	95% KM USL	0.14

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0375	SD	0.0319
95% UTL95% Coverage	0.0988	95% UPL (t)	0.0907
90% Percentile (z)	0.0784	95% Percentile (z)	0.09
99% Percentile (z)	0.112	95% USL	0.14

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.794	Anderson-Darling GOF Test	
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.105	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.102	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics on Detected Data Only

k hat (MLE)	2.215	k star (bias corrected MLE)	2.139
Theta hat (MLE)	0.0208	Theta star (bias corrected MLE)	0.0215
nu hat (MLE)	345.6	nu star (bias corrected)	333.6
MLE Mean (bias corrected)	0.046		
MLE Sd (bias corrected)	0.0315	95% Percentile of Chisquare (2kstar)	9.934

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.007	Mean	0.0375
Maximum	0.15	Median	0.03
SD	0.0318	CV	0.848
k hat (MLE)	1.667	k star (bias corrected MLE)	1.625
Theta hat (MLE)	0.0225	Theta star (bias corrected MLE)	0.0231
nu hat (MLE)	343.4	nu star (bias corrected)	334.7
MLE Mean (bias corrected)	0.0375	MLE Sd (bias corrected)	0.0294
95% Percentile of Chisquare (2kstar)	8.243	90% Percentile	0.0767
95% Percentile	0.0952	99% Percentile	0.137

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.109	0.113	95% Approx. Gamma UPL	0.0949	0.0968
95% Gamma USL	0.206	0.229			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0372	SD (KM)	0.032
Variance (KM)	0.00103	SE of Mean (KM)	0.00318
k hat (KM)	1.346	k star (KM)	1.313
nu hat (KM)	277.3	nu star (KM)	270.5
theta hat (KM)	0.0276	theta star (KM)	0.0283
80% gamma percentile (KM)	0.0583	90% gamma percentile (KM)	0.08
95% gamma percentile (KM)	0.101	99% gamma percentile (KM)	0.15

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.111	0.115	95% Approx. Gamma UPL	0.0961	0.0983
95% KM Gamma Percentile	0.0948	0.0969	95% Gamma USL	0.213	0.238

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.953	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0.0164	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.131	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.1	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0376	Mean in Log Scale	-3.617
SD in Original Scale	0.0318	SD in Log Scale	0.849
95% UTL95% Coverage	0.137	95% BCA UTL95% Coverage	0.12
95% Bootstrap (%) UTL95% Coverage	0.12	95% UPL (t)	0.111
90% Percentile (z)	0.0797	95% Percentile (z)	0.108
99% Percentile (z)	0.193	95% USL	0.413

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.652	95% KM UTL (Lognormal)95% Coverage	0.137
KM SD of Logged Data	0.866	95% KM UPL (Lognormal)	0.11
95% KM Percentile Lognormal (z)	0.108	95% KM USL (Lognormal)	0.422

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0375	Mean in Log Scale	-3.622
SD in Original Scale	0.0319	SD in Log Scale	0.836
95% UTL95% Coverage	0.133	95% UPL (t)	0.108
90% Percentile (z)	0.078	95% Percentile (z)	0.106
99% Percentile (z)	0.187	95% USL	0.394

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	101	95% UTL with95% Coverage	0.12
Approx, f used to compute achieved CC	1.772	Approximate Actual Confidence Coefficient achieved by UTL	0.894
Approximate Sample Size needed to achieve specified CC	124	95% UPL	0.11
95% USL	0.15	95% KM Chebyshev UPL	0.178

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Attachment C-4

ProUCL Input Data

Table C4-1. ProUCL input of metal and metalloid concentrations by total metals methods for screened background samples

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
geochem-fu53[c]	24239	68800	1			6.3	1	650	1	2	1	2	0	51	1	10	1	17	1	25100	1
geochem-fu53[c]	24253	56600	1			2.1	1	393	1	2	1	2	0	23	1	6	1	23	1	21500	1
geochem-fu53[c]	24273	60100	1			2	1	637	1	2	1	2	0	18	1	7	1	19	1	28600	1
geochem-fu53[c]	24382	57100	1			10.9	1	1520	1	2	1	9	1	64	1	8	1	44	1	24400	1
geochem-fu53[c]	24499	67900	1			5.3	1	711	1	2	1	2	0	30	1	14	1	18	1	35700	1
geochem-fu53[c]	24693	43350	1			4.1	1	592	1	1	1	2	0	37	1	11	1	29	1	30600	1
geochem-fu53[c]	24749	10300	1			1.5	1	95	1	1	0	2	0	7	1	2	1	16	1	7900	1
geochem-fu53[c]	24762	69830	1			36.6	1	436	1	2	1	2	0	35	1	19	1	55	1	49300	1
geochem-fu53[c]	24778	74250	1			1.2	1	533	1	3	1	2	0	7	1	5	1	4	1	34000	1
geochem-fu53[c]	24812	65550	1			2.1	1	448	1	2	1	2	0	21	1	5	1	9	1	29600	1
geochem-fu53[c]	24830	66850	1			3.9	1	600	1	1	1	2	0	45	1	12	1	12	1	28000	1
geochem-fu53[c]	24879	79400	1			6.3	1	594	1	2	1	2	0	28	1	13	1	14	1	30800	1
geochem-fu53[c]	25111	70550	1			5.6	1	632	1	2	1	2	0	23	1	9	1	14	1	29100	1
geochem-fu53[c]	25275	70590	1			2.3	1	531	1	4	1	2	0	58	1	10	1	12	1	24200	1
geochem-fu53[c]	25424	75350	1			12.2	1	582	1	3	1	2	0	45	1	18	1	34	1	38000	1
geochem-fu53[c]	25519	69590	1			1.7	1	481	1	5	1	2	0	13	1	5	1	3	1	14400	1
geochem-fu53[c]	24287-R1	59745	1			2.9	1	607.5	1	2	1	2	0	49	1	13	1	5.5	1	67400	1
geochem-fu53[c]	DSOK234S1	74090	1			4.9	1	722	1	2	1	2	0	30	1	10	1	16	1	29500	1
geochem-fu53[c]	DSOM230S1	73590	1			3.7	1	868	1	2	1	2	0	29	1	9	1	16	1	24400	1
geochem-fu53[c]	DSOM232S1	71010	1			2	1	852	1	2	1	2	0	18	1	7	1	11	1	19400	1
geochem-fu53[c]	DSOP089S1-R1	72435	1			2.9	1	864.5	1	1	1	2	0	40	1	9.5	1	18.5	1	28650	1
geochem-fu53[c]	DSOR183S1	35260	1			5.4	1	292	1	1	0	2	0	16	1	8	1	7	1	24800	1
geochem-fu53[c]	DSOS095S1	70840	1			6.1	1	609	1	1	1	2	0	34	1	12	1	17	1	35800	1
geochem-fu53[c]	ONAA013S1	76450	1			2.1	1	525	1	1	0	2	0	97	1	19	1	1	1	58600	1
geochem-fu53[c]	ONAA034S1	73040	1			2.3	1	858	1	1	1	2	0	27	1	9	1	8	1	29800	1
geochem-fu53[c]	ONAB016S1	77990	1			3.1	1	931	1	1	0	2	0	19	1	14	1	2	1	44600	1
geochem-fu53[c]	ONAC025S1	59350	1			2.9	1	721	1	1	1	2	0	62	1	9	1	4	1	32400	1
geochem-fu53[c]	ONAC037S1	65620	1			1.4	1	812	1	1	1	2	0	30	1	6	1	24	1	20000	1
geochem-fu53[c]	ONAD022S1	59680	1			14.7	1	617	1	1	1	2	0	27	1	8	1	33	1	23200	1
geochem-fu53[c]	ONAE010S1	74750	1			3.3	1	688	1	2	1	2	0	44	1	9	1	27	1	33500	1
geochem-fu53[c]	ONAF038S1	70950	1			2.3	1	1060	1	2	1	2	0	89	1	10	1	4	1	34100	1
geochem-fu53[c]	ONAH007S1	77830	1			9.2	1	756	1	2	1	2	0	81	1	13	1	36	1	35900	1
geochem-fu53[c]	ONBA037S1	71780	1			3.4	1	806	1	1	0	2	0	29	1	9	1	6	1	29500	1
geochem-fu53[c]	ONBB022S1-R1	64160	1			19.15	1	886	1	1	0	2	0	40	1	12	1	45	1	31550	1
geochem-fu53[c]	ONBC001S1	64020	1			1.4	1	607	1	1	0	2	0	11	1	8	1	34	1	22500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
geochem-fu53[c]	24239	47	1	718	1	2	0	28	1	0.5	1					64	1	364	1
geochem-fu53[c]	24253	27	1	421	1	2	0	16	1	1	1					53	1	49	1
geochem-fu53[c]	24273	19	1	617	1	2	0	17	1	2.3	1					89	1	56	1
geochem-fu53[c]	24382	46	1	446	1	6	1	101	1	2	1					385	1	687	1
geochem-fu53[c]	24499	22	1	1130	1	2	0	21	1	0.6	1					106	1	63	1
geochem-fu53[c]	24693	23	1	825	1	2	0	24	1	0.4	1					70	1	63	1
geochem-fu53[c]	24749	18	1	287	1	3	1	6	1	0.3	1					19	1	31	1
geochem-fu53[c]	24762	13	1	788	1	2	0	27	1	0.7	1					147	1	66	1
geochem-fu53[c]	24778	35	1	531	1	2	0	8	1	0.2	0					111	1	44	1
geochem-fu53[c]	24812	33	1	720	1	2	0	12	1	0.4	1					63	1	68	1
geochem-fu53[c]	24830	39	1	491	1	2	0	27	1	0.2	1					71	1	100	1
geochem-fu53[c]	24879	24	1	568	1	2	0	21	1	0.2	0					80	1	62	1
geochem-fu53[c]	25111	33	1	4180	1	2	0	16	1	0.4	1					57	1	58	1
geochem-fu53[c]	25275	26	1	831	1	2	0	22	1	0.3	1					53	1	61	1
geochem-fu53[c]	25424	33	1	892	1	2	0	53	1	0.7	1					75	1	114	1
geochem-fu53[c]	25519	29	1	811	1	2	0	9	1	0.2	0					29	1	39	1
geochem-fu53[c]	24287-R1	19.5	1	767	1	7	1	21.5	1	0.7	1					225	1	65.5	1
geochem-fu53[c]	DSOK234S1	34	1	964	1	5	1	15	1	0.2	0					77	1	94	1
geochem-fu53[c]	DSOM230S1	23	1	652	1	5	1	23	1	0.2	0					59	1	79	1
geochem-fu53[c]	DSOM232S1	24	1	485	1	6	1	18	1	0.2	0					49	1	57	1
geochem-fu53[c]	DSOP089S1-R1	21	1	747	1	5.5	1	22.5	1	0.2	0					73.5	1	96.5	1
geochem-fu53[c]	DSOR183S1	7	1	416	1	2	0	16	1	0.2	0					81	1	55	1
geochem-fu53[c]	DSOS095S1	24	1	591	1	4	1	17	1	0.2	0					95	1	80	1
geochem-fu53[c]	ONAA013S1	20	1	914	1	7	1	16	1	0.3	1					208	1	56	1
geochem-fu53[c]	ONAA034S1	20	1	985	1	6	1	16	1	0.2	0					81	1	86	1
geochem-fu53[c]	ONAB016S1	18	1	778	1	5	1	19	1	0.2	0					143	1	42	1
geochem-fu53[c]	ONAC025S1	18	1	703	1	3	1	16	1	0.2	0					107	1	42	1
geochem-fu53[c]	ONAC037S1	19	1	479	1	4	1	17	1	0.3	1					59	1	37	1
geochem-fu53[c]	ONAD022S1	24	1	566	1	6	1	14	1	0.3	1					63	1	59	1
geochem-fu53[c]	ONAE010S1	28	1	590	1	5	1	20	1	0.2	0					101	1	77	1
geochem-fu53[c]	ONAF038S1	25	1	543	1	6	1	22	1	0.2	0					109	1	49	1
geochem-fu53[c]	ONAH007S1	23	1	742	1	4	1	78	1	0.4	1					101	1	84	1
geochem-fu53[c]	ONBA037S1	18	1	499	1	5	1	14	1	0.2	0					103	1	45	1
geochem-fu53[c]	ONBB022S1-R1	24.5	1	771.5	1	11	1	32.5	1	0.9	1					118	1	115.5	1
geochem-fu53[c]	ONBC001S1	17	1	403	1	4	1	19	1	1.3	1					67	1	54	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
geochem-fu53[c]	ONBC014S1	73480	1			0.9	1	651	1	1	0	2	0	29	1	9	1	1	1	38700	1
geochem-fu53[c]	ONBD011S1	69080	1			1.1	1	684	1	2	1	2	0	15	1	7	1	11	1	21500	1
geochem-fu53[c]	ONBD025S1	69850	1			2.4	1	759	1	2	1	2	0	15	1	7	1	9	1	21000	1
geochem-fu53[c]	ONBD033S1	74360	1			0.8	1	850	1	2	1	2	0	14	1	6	1	1	1	20600	1
geochem-fu53[c]	ONBE028S1	72660	1			1.5	1	791	1	2	1	2	0	21	1	5	1	13	1	18900	1
geochem-fu53[c]	ONBG025S1	61440	1			1.9	1	603	1	2	1	2	0	27	1	7	1	6	1	20400	1
geochem-fu53[c]	ONCA015S1	59290	1			1.8	1	410	1	1	0	2	0	9	1	6	1	22	1	18800	1
geochem-fu53[c]	ONCB014S1	71230	1			2.2	1	629	1	1	1	2	0	42	1	8	1	1	1	52800	1
geochem-fu53[c]	ONCB031S1	73150	1			7.7	1	751	1	1	1	2	0	31	1	10	1	21	1	30400	1
geochem-fu53[c]	ONCC016S1	72160	1			1.4	1	731	1	1	1	2	0	26	1	6	1	14	1	25300	1
geochem-fu53[c]	ONCD018S1	70240	1			1.9	1	717	1	1	1	2	0	26	1	8	1	18	1	25700	1
geochem-fu53[c]	ONCF034S1	71940	1			3.6	1	833	1	2	1	2	0	85	1	11	1	1	1	43100	1
geochem-fu53[c]	ONCG008S1	71390	1			4.2	1	770	1	2	1	2	0	31	1	11	1	31	1	28400	1
geochem-fu53[c]	ONCH030S1	51480	1			3.8	1	1090	1	1	0	2	0	66	1	10	1	9	1	28900	1
geochem-fu53[c]	ONCH034S1	57260	1			6.8	1	733	1	1	1	2	0	88	1	15	1	24	1	35900	1
geochem-fu53[c]	ONDA014S1	91470	1			2.4	1	820	1	1	0	2	0	13	1	4	1	7	1	27500	1
geochem-fu53[c]	ONDB011S1	69960	1			3	1	667	1	1	1	2	0	27	1	8	1	10	1	24900	1
geochem-fu53[c]	ONDE011S1	73260	1			3.6	1	905	1	2	1	2	0	7	1	7	1	9	1	20800	1
geochem-fu53[c]	ONDF032S1	72710	1			1.1	1	854	1	1	1	2	0	47	1	14	1	4	1	34900	1
geochem-fu53[c]	ONDG016S1	60450	1			2.2	1	715	1	1	1	2	0	25	1	11	1	9	1	31600	1
geochem-fu53[c]	RZAG009S1	68640	1			5.3	1	657	1	1	1	2	0	25	1	12	1	16	1	32700	1
geochem-fu53[c]	RZBG020S1	63750	1			4.4	1	527	1	1	1	2	0	24	1	9	1	12	1	32100	1
geochem-fu53[c]	SKAA017S1	67650	1			7.4	1	606	1	2	1	2	0	29	1	8	1	30	1	27200	1
geochem-fu53[c]	SKAA037S1	81510	1			5.5	1	508	1	10	1	2	0	26	1	15	1	42	1	41800	1
geochem-fu53[c]	SKAB017S1	76400	1			7.1	1	550	1	1	1	2	0	25	1	24	1	18	1	60700	1
geochem-fu53[c]	SKAC013S1	58740	1			4.6	1	579	1	2	1	2	0	31	1	12	1	11	1	26400	1
geochem-fu53[c]	SKBB009S1	60610	1			5.6	1	626	1	1	1	2	0	26	1	14	1	14	1	40000	1
NURE Seds[e]	DSOK001S1	63600	1																	26900	1
NURE Seds[e]	DSOK002S1	72600	1																	21900	1
NURE Seds[e]	DSOK003S1	28500	1																	14100	1
NURE Seds[e]	DSOK007S1	59900	1																	37900	1
NURE Seds[e]	DSOK010S1	51200	1																	27300	1
NURE Seds[e]	DSOK012S1	49700	1																	33200	1
NURE Seds[e]	DSOK013S1	56900	1																	35000	1
NURE Seds[e]	DSOK015S1	55900	1																	33200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
geochem-fu53[c]	ONBC014S1	17	1	611	1	5	1	8	1	0.2	0					127	1	39	1
geochem-fu53[c]	ONBD011S1	20	1	608	1	3	1	17	1	0.4	1					63	1	42	1
geochem-fu53[c]	ONBD025S1	25	1	655	1	7	1	3	0	0.2	0					54	1	59	1
geochem-fu53[c]	ONBD033S1	19	1	437	1	2	1	10	1	0.2	0					60	1	33	1
geochem-fu53[c]	ONBE028S1	36	1	348	1	4	1	10	1	0.5	1					57	1	96	1
geochem-fu53[c]	ONBG025S1	35	1	662	1	4	1	13	1	0.2	0					48	1	41	1
geochem-fu53[c]	ONCA015S1	15	1	296	1	5	1	6	1	0.6	1					59	1	54	1
geochem-fu53[c]	ONCB014S1	32	1	840	1	5	1	15	1	0.2	0					162	1	67	1
geochem-fu53[c]	ONCB031S1	41	1	657	1	4	1	22	1	0.2	1					89	1	90	1
geochem-fu53[c]	ONCC016S1	19	1	388	1	4	1	12	1	0.3	1					60	1	44	1
geochem-fu53[c]	ONCD018S1	20	1	354	1	5	1	13	1	0.3	1					60	1	68	1
geochem-fu53[c]	ONCF034S1	26	1	880	1	7	1	18	1	0.2	1					157	1	80	1
geochem-fu53[c]	ONCG008S1	20	1	604	1	5	1	26	1	0.5	1					68	1	114	1
geochem-fu53[c]	ONCH030S1	21	1	428	1	6	1	24	1	0.8	1					143	1	85	1
geochem-fu53[c]	ONCH034S1	25	1	532	1	4	1	46	1	1.1	1					118	1	113	1
geochem-fu53[c]	ONDA014S1	30	1	789	1	6	1	6	1	0.3	1					63	1	90	1
geochem-fu53[c]	ONDB011S1	19	1	499	1	5	1	14	1	0.2	0					69	1	48	1
geochem-fu53[c]	ONDE011S1	24	1	392	1	5	1	16	1	0.2	0					62	1	55	1
geochem-fu53[c]	ONDF032S1	20	1	800	1	5	1	22	1	0.2	0					104	1	64	1
geochem-fu53[c]	ONDG016S1	21	1	458	1	5	1	16	1	2	1					109	1	68	1
geochem-fu53[c]	RZAG009S1	21	1	595	1	4	1	12	1	0.2	0					90	1	71	1
geochem-fu53[c]	RZBG020S1	22	1	414	1	4	1	15	1	0.2	0					104	1	87	1
geochem-fu53[c]	SKAA017S1	25	1	484	1	6	1	20	1	0.3	1					66	1	57	1
geochem-fu53[c]	SKAA037S1	30	1	1270	1	5	1	12	1	0.2	0					110	1	172	1
geochem-fu53[c]	SKAB017S1	23	1	1110	1	5	1	15	1	0.2	0					156	1	124	1
geochem-fu53[c]	SKAC013S1	23	1	555	1	5	1	17	1	0.2	0					81	1	58	1
geochem-fu53[c]	SKBB009S1	25	1	1750	1	5	1	12	1	0.2	0					114	1	86	1
NURE Seds[e]	DSOK001S1			490	1											130	1		
NURE Seds[e]	DSOK002S1			510	1											60	1		
NURE Seds[e]	DSOK003S1			380	1											40	1		
NURE Seds[e]	DSOK007S1			1530	1											100	1		
NURE Seds[e]	DSOK010S1			600	1											70	1		
NURE Seds[e]	DSOK012S1			1580	1											70	1		
NURE Seds[e]	DSOK013S1			740	1											70	1		
NURE Seds[e]	DSOK015S1			680	1											200	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK016S1	45600	1																	35900	1
NURE Seds[e]	DSOK017S1	52500	1																	29800	1
NURE Seds[e]	DSOK019S1	53300	1																	34700	1
NURE Seds[e]	DSOK020S1	51600	1																	35600	1
NURE Seds[e]	DSOK022S1	51100	1																	23300	1
NURE Seds[e]	DSOK023S1	51500	1																	35900	1
NURE Seds[e]	DSOK024S1	49800	1																	30800	1
NURE Seds[e]	DSOK025S1	46400	1																	45800	1
NURE Seds[e]	DSOK026S1	53500	1																	24900	1
NURE Seds[e]	DSOK027S1	50800	1																	35900	1
NURE Seds[e]	DSOK028S1	55800	1																	30200	1
NURE Seds[e]	DSOK029S1	53200	1																	29600	1
NURE Seds[e]	DSOK030S1	50100	1																	23200	1
NURE Seds[e]	DSOK031S1	54500	1																	21600	1
NURE Seds[e]	DSOK035S1	55300	1																	34000	1
NURE Seds[e]	DSOK036S1	54900	1																	32800	1
NURE Seds[e]	DSOK037S1	41200	1																	20600	1
NURE Seds[e]	DSOK038S1	40800	1																	20200	1
NURE Seds[e]	DSOK039S1	44400	1																	25800	1
NURE Seds[e]	DSOK040S1	59800	1																	33200	1
NURE Seds[e]	DSOK041S1	53600	1																	29100	1
NURE Seds[e]	DSOK042S1	52000	1																	37700	1
NURE Seds[e]	DSOK044S1	54500	1																	28100	1
NURE Seds[e]	DSOK045S1	54200	1																	26600	1
NURE Seds[e]	DSOK046S1	53500	1																	51000	1
NURE Seds[e]	DSOK047S1	54600	1																	29800	1
NURE Seds[e]	DSOK053S1	51800	1																	31200	1
NURE Seds[e]	DSOK054S1	46900	1																	32300	1
NURE Seds[e]	DSOK055S1	46400	1																	28900	1
NURE Seds[e]	DSOK057S1	59700	1																	26900	1
NURE Seds[e]	DSOK058S1	55300	1																	30500	1
NURE Seds[e]	DSOK059S1	51800	1																	25500	1
NURE Seds[e]	DSOK060S1	56400	1																	33000	1
NURE Seds[e]	DSOK061S1	53600	1																	40600	1
NURE Seds[e]	DSOK062S1	33300	1																	22800	1

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK016S1			520	1											90	1		
NURE Seds[e]	DSOK017S1			480	1											80	1		
NURE Seds[e]	DSOK019S1			620	1											130	1		
NURE Seds[e]	DSOK020S1			550	1											120	1		
NURE Seds[e]	DSOK022S1			580	1											80	1		
NURE Seds[e]	DSOK023S1			460	1											90	1		
NURE Seds[e]	DSOK024S1			360	1											80	1		
NURE Seds[e]	DSOK025S1			770	1											120	1		
NURE Seds[e]	DSOK026S1			970	1											70	1		
NURE Seds[e]	DSOK027S1			590	1											100	1		
NURE Seds[e]	DSOK028S1			690	1											70	1		
NURE Seds[e]	DSOK029S1			630	1											100	1		
NURE Seds[e]	DSOK030S1			1570	1											10	0		
NURE Seds[e]	DSOK031S1			590	1											70	1		
NURE Seds[e]	DSOK035S1			920	1											70	1		
NURE Seds[e]	DSOK036S1			700	1											80	1		
NURE Seds[e]	DSOK037S1			470	1											50	1		
NURE Seds[e]	DSOK038S1			590	1											70	1		
NURE Seds[e]	DSOK039S1			740	1											60	1		
NURE Seds[e]	DSOK040S1			780	1											110	1		
NURE Seds[e]	DSOK041S1			540	1											80	1		
NURE Seds[e]	DSOK042S1			750	1											80	1		
NURE Seds[e]	DSOK044S1			630	1											90	1		
NURE Seds[e]	DSOK045S1			470	1											60	1		
NURE Seds[e]	DSOK046S1			1100	1											130	1		
NURE Seds[e]	DSOK047S1			640	1											70	1		
NURE Seds[e]	DSOK053S1			640	1											70	1		
NURE Seds[e]	DSOK054S1			660	1											60	1		
NURE Seds[e]	DSOK055S1			820	1											70	1		
NURE Seds[e]	DSOK057S1			720	1											80	1		
NURE Seds[e]	DSOK058S1			670	1											70	1		
NURE Seds[e]	DSOK059S1			460	1											110	1		
NURE Seds[e]	DSOK060S1			930	1											100	1		
NURE Seds[e]	DSOK061S1			630	1											80	1		
NURE Seds[e]	DSOK062S1			600	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK063S1	66500	1																	30900	1
NURE Seds[e]	DSOK064S1	51300	1																	27900	1
NURE Seds[e]	DSOK065S1	39700	1																	20900	1
NURE Seds[e]	DSOK066S1	49600	1																	31300	1
NURE Seds[e]	DSOK070S1	33600	1																	20000	1
NURE Seds[e]	DSOK071S1	53000	1																	30800	1
NURE Seds[e]	DSOK073S1	48600	1																	27900	1
NURE Seds[e]	DSOK074S1	51500	1																	33900	1
NURE Seds[e]	DSOK075S1	44600	1																	56800	1
NURE Seds[e]	DSOK076S1	51600	1																	26400	1
NURE Seds[e]	DSOK077S1	44100	1																	24100	1
NURE Seds[e]	DSOK078S1	59400	1																	33800	1
NURE Seds[e]	DSOK079S1	52500	1																	33500	1
NURE Seds[e]	DSOK080S1	47700	1																	33700	1
NURE Seds[e]	DSOK082S1	54800	1																	26400	1
NURE Seds[e]	DSOK083S1	51500	1																	29400	1
NURE Seds[e]	DSOK084S1	52700	1																	29100	1
NURE Seds[e]	DSOK085S1	57700	1																	27500	1
NURE Seds[e]	DSOK087S1	54000	1																	34900	1
NURE Seds[e]	DSOK088S1	40300	1																	27000	1
NURE Seds[e]	DSOK089S1	58000	1																	32400	1
NURE Seds[e]	DSOK090S1	30500	1																	13000	1
NURE Seds[e]	DSOK091S1	50300	1																	21800	1
NURE Seds[e]	DSOK093S1	39900	1																	35100	1
NURE Seds[e]	DSOK094S1	64700	1																	44100	1
NURE Seds[e]	DSOK097S1	59000	1																	32900	1
NURE Seds[e]	DSOK098S1	60300	1																	40100	1
NURE Seds[e]	DSOK099S1	60800	1																	25700	1
NURE Seds[e]	DSOK100S1	53600	1																	24300	1
NURE Seds[e]	DSOK101S1	53800	1																	27700	1
NURE Seds[e]	DSOK102S1	59900	1																	26600	1
NURE Seds[e]	DSOK103S1	52500	1																	22800	1
NURE Seds[e]	DSOK104S1	58800	1																	28600	1
NURE Seds[e]	DSOK107S1	45700	1																	14800	1
NURE Seds[e]	DSOK108S1	19700	1																	13300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK063S1			1120	1											60	1		
NURE Seds[e]	DSOK064S1			370	1											50	1		
NURE Seds[e]	DSOK065S1			500	1											80	1		
NURE Seds[e]	DSOK066S1			640	1											140	1		
NURE Seds[e]	DSOK070S1			390	1											100	1		
NURE Seds[e]	DSOK071S1			830	1											170	1		
NURE Seds[e]	DSOK073S1			710	1											200	1		
NURE Seds[e]	DSOK074S1			550	1											120	1		
NURE Seds[e]	DSOK075S1			680	1											150	1		
NURE Seds[e]	DSOK076S1			410	1											250	1		
NURE Seds[e]	DSOK077S1			460	1											180	1		
NURE Seds[e]	DSOK078S1			1090	1											90	1		
NURE Seds[e]	DSOK079S1			940	1											70	1		
NURE Seds[e]	DSOK080S1			610	1											100	1		
NURE Seds[e]	DSOK082S1			760	1											100	1		
NURE Seds[e]	DSOK083S1			430	1											300	1		
NURE Seds[e]	DSOK084S1			400	1											490	1		
NURE Seds[e]	DSOK085S1			400	1											200	1		
NURE Seds[e]	DSOK087S1			580	1											130	1		
NURE Seds[e]	DSOK088S1			510	1											80	1		
NURE Seds[e]	DSOK089S1			860	1											100	1		
NURE Seds[e]	DSOK090S1			520	1											40	1		
NURE Seds[e]	DSOK091S1			570	1											120	1		
NURE Seds[e]	DSOK093S1			760	1											100	1		
NURE Seds[e]	DSOK094S1			820	1											60	1		
NURE Seds[e]	DSOK097S1			1990	1											60	1		
NURE Seds[e]	DSOK098S1			1150	1											80	1		
NURE Seds[e]	DSOK099S1			1080	1											70	1		
NURE Seds[e]	DSOK100S1			1020	1											60	1		
NURE Seds[e]	DSOK101S1			1160	1											50	1		
NURE Seds[e]	DSOK102S1			1040	1											50	1		
NURE Seds[e]	DSOK103S1			1460	1											60	1		
NURE Seds[e]	DSOK104S1			1490	1											70	1		
NURE Seds[e]	DSOK107S1			280	1											40	1		
NURE Seds[e]	DSOK108S1			330	1											10	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK109S1	63800	1																	24500	1
NURE Seds[e]	DSOK110S1	57100	1																	27000	1
NURE Seds[e]	DSOK111S1	51500	1																	31800	1
NURE Seds[e]	DSOK112S1	55900	1																	22500	1
NURE Seds[e]	DSOK114S1	61400	1																	31600	1
NURE Seds[e]	DSOK115S1	45400	1																	27700	1
NURE Seds[e]	DSOK116S1	52800	1																	28000	1
NURE Seds[e]	DSOK117S1	56700	1																	24800	1
NURE Seds[e]	DSOK118S1	52300	1																	30300	1
NURE Seds[e]	DSOK119S1	22600	1																	14300	1
NURE Seds[e]	DSOK120S1	60300	1																	23800	1
NURE Seds[e]	DSOK122S1	43400	1																	36200	1
NURE Seds[e]	DSOK123S1	60700	1																	28000	1
NURE Seds[e]	DSOK124S1	57200	1																	27700	1
NURE Seds[e]	DSOK125S1	58200	1																	35800	1
NURE Seds[e]	DSOK126S1	43300	1																	24400	1
NURE Seds[e]	DSOK127S1	66500	1																	37800	1
NURE Seds[e]	DSOK128S1	46800	1																	34200	1
NURE Seds[e]	DSOK129S1	59900	1																	31100	1
NURE Seds[e]	DSOK130S1	60400	1																	26900	1
NURE Seds[e]	DSOK134S1	57300	1																	30800	1
NURE Seds[e]	DSOK137S1	53000	1																	24100	1
NURE Seds[e]	DSOK138S1	56200	1																	26400	1
NURE Seds[e]	DSOK139S1	49700	1																	23500	1
NURE Seds[e]	DSOK141S1	49600	1																	25800	1
NURE Seds[e]	DSOK142S1	55400	1																	32400	1
NURE Seds[e]	DSOK143S1	31500	1																	20100	1
NURE Seds[e]	DSOK145S1	52500	1																	23300	1
NURE Seds[e]	DSOK147S1	51000	1																	17400	1
NURE Seds[e]	DSOK148S1	53000	1																	28000	1
NURE Seds[e]	DSOK152S1	39500	1																	31100	1
NURE Seds[e]	DSOK154S1	56300	1																		
NURE Seds[e]	DSOK156S1	65200	1																	30600	1
NURE Seds[e]	DSOK157S1	51700	1																	28800	1
NURE Seds[e]	DSOK158S1	49200	1																	24800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK109S1			1160	1											60	1		
NURE Seds[e]	DSOK110S1			430	1											40	1		
NURE Seds[e]	DSOK111S1			470	1											50	1		
NURE Seds[e]	DSOK112S1			650	1											90	1		
NURE Seds[e]	DSOK114S1			640	1											140	1		
NURE Seds[e]	DSOK115S1			510	1											50	1		
NURE Seds[e]	DSOK116S1			610	1											100	1		
NURE Seds[e]	DSOK117S1			460	1											90	1		
NURE Seds[e]	DSOK118S1			550	1											150	1		
NURE Seds[e]	DSOK119S1			230	1											30	1		
NURE Seds[e]	DSOK120S1			610	1											60	1		
NURE Seds[e]	DSOK122S1			440	1											100	1		
NURE Seds[e]	DSOK123S1			720	1											60	1		
NURE Seds[e]	DSOK124S1			820	1											60	1		
NURE Seds[e]	DSOK125S1			1090	1											80	1		
NURE Seds[e]	DSOK126S1			870	1											90	1		
NURE Seds[e]	DSOK127S1			1300	1											90	1		
NURE Seds[e]	DSOK128S1			750	1											80	1		
NURE Seds[e]	DSOK129S1			1030	1											70	1		
NURE Seds[e]	DSOK130S1			970	1											60	1		
NURE Seds[e]	DSOK134S1			910	1											70	1		
NURE Seds[e]	DSOK137S1			490	1											70	1		
NURE Seds[e]	DSOK138S1			580	1											60	1		
NURE Seds[e]	DSOK139S1			550	1											60	1		
NURE Seds[e]	DSOK141S1			690	1											60	1		
NURE Seds[e]	DSOK142S1			750	1											100	1		
NURE Seds[e]	DSOK143S1			500	1											40	1		
NURE Seds[e]	DSOK145S1			620	1											50	1		
NURE Seds[e]	DSOK147S1			530	1											50	1		
NURE Seds[e]	DSOK148S1			540	1											90	1		
NURE Seds[e]	DSOK152S1			1020	1											70	1		
NURE Seds[e]	DSOK154S1			670	1											60	1		
NURE Seds[e]	DSOK156S1			870	1											70	1		
NURE Seds[e]	DSOK157S1			600	1											50	1		
NURE Seds[e]	DSOK158S1			690	1											90	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK159S1	53800	1																	24800	1
NURE Seds[e]	DSOK160S1	61200	1																	28900	1
NURE Seds[e]	DSOK163S1	59300	1																	33500	1
NURE Seds[e]	DSOK165S1	54800	1																	28000	1
NURE Seds[e]	DSOK166S1	50600	1																	28100	1
NURE Seds[e]	DSOK167S1	52700	1																	22800	1
NURE Seds[e]	DSOK168S1	61200	1																	30900	1
NURE Seds[e]	DSOK169S1	60600	1																	21400	1
NURE Seds[e]	DSOK170S1	38000	1																	37000	1
NURE Seds[e]	DSOK171S1	52400	1																	24500	1
NURE Seds[e]	DSOK173S1	62200	1																	21400	1
NURE Seds[e]	DSOK177S1	52700	1																	20500	1
NURE Seds[e]	DSOK178S1	55700	1																	24300	1
NURE Seds[e]	DSOK179S1	62600	1																	29700	1
NURE Seds[e]	DSOK180S1	56900	1																	25600	1
NURE Seds[e]	DSOK181S1	60100	1																	14900	1
NURE Seds[e]	DSOK183S1	57600	1																	35600	1
NURE Seds[e]	DSOK184S1	63700	1																	30200	1
NURE Seds[e]	DSOK185S1	56800	1																	22000	1
NURE Seds[e]	DSOK186S1	51000	1																	43000	1
NURE Seds[e]	DSOK187S1	58800	1																	26100	1
NURE Seds[e]	DSOK190S1	54300	1																	23100	1
NURE Seds[e]	DSOK191S1	54100	1																	36400	1
NURE Seds[e]	DSOK192S1	53500	1																	29700	1
NURE Seds[e]	DSOK194S1	500	0																		
NURE Seds[e]	DSOK195S1	44400	1																	21200	1
NURE Seds[e]	DSOK196S1	53900	1																	32300	1
NURE Seds[e]	DSOK197S1	50700	1																	32200	1
NURE Seds[e]	DSOK198S1	40100	1																	19900	1
NURE Seds[e]	DSOK199S1	53000	1																	25800	1
NURE Seds[e]	DSOK200S1	63700	1																	14400	1
NURE Seds[e]	DSOK201S1	66500	1																	29200	1
NURE Seds[e]	DSOK202S1	53700	1																	46700	1
NURE Seds[e]	DSOK203S1	31900	1																	11100	1
NURE Seds[e]	DSOK204S1	62700	1																	26700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK159S1			480	1											60	1		
NURE Seds[e]	DSOK160S1			680	1											90	1		
NURE Seds[e]	DSOK163S1			1010	1											70	1		
NURE Seds[e]	DSOK165S1			1970	1											30	1		
NURE Seds[e]	DSOK166S1			710	1											50	1		
NURE Seds[e]	DSOK167S1			440	1											50	1		
NURE Seds[e]	DSOK168S1			760	1											80	1		
NURE Seds[e]	DSOK169S1			480	1											60	1		
NURE Seds[e]	DSOK170S1			960	1											80	1		
NURE Seds[e]	DSOK171S1			1020	1											60	1		
NURE Seds[e]	DSOK173S1			740	1											80	1		
NURE Seds[e]	DSOK177S1			670	1											60	1		
NURE Seds[e]	DSOK178S1			560	1											50	1		
NURE Seds[e]	DSOK179S1			1100	1											90	1		
NURE Seds[e]	DSOK180S1			560	1											60	1		
NURE Seds[e]	DSOK181S1			390	1											40	1		
NURE Seds[e]	DSOK183S1			1120	1											120	1		
NURE Seds[e]	DSOK184S1			870	1											80	1		
NURE Seds[e]	DSOK185S1			580	1											40	1		
NURE Seds[e]	DSOK186S1			790	1											490	1		
NURE Seds[e]	DSOK187S1			610	1											150	1		
NURE Seds[e]	DSOK190S1			560	1											140	1		
NURE Seds[e]	DSOK191S1			780	1											230	1		
NURE Seds[e]	DSOK192S1			570	1											90	1		
NURE Seds[e]	DSOK194S1			20	0														
NURE Seds[e]	DSOK195S1			550	1											40	1		
NURE Seds[e]	DSOK196S1			1230	1											70	1		
NURE Seds[e]	DSOK197S1			960	1											90	1		
NURE Seds[e]	DSOK198S1			750	1											60	1		
NURE Seds[e]	DSOK199S1			950	1											50	1		
NURE Seds[e]	DSOK200S1			430	1											40	1		
NURE Seds[e]	DSOK201S1			590	1											60	1		
NURE Seds[e]	DSOK202S1			980	1											130	1		
NURE Seds[e]	DSOK203S1			400	1											30	1		
NURE Seds[e]	DSOK204S1			670	1											50	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK205S1	51100	1																	24400	1
NURE Seds[e]	DSOK206S1	57600	1																	21200	1
NURE Seds[e]	DSOK208S1	60400	1																	24600	1
NURE Seds[e]	DSOK209S1	53000	1																	23400	1
NURE Seds[e]	DSOK210S1	52100	1																	26200	1
NURE Seds[e]	DSOK211S1	47500	1																	25500	1
NURE Seds[e]	DSOK213S1	61000	1																	29100	1
NURE Seds[e]	DSOK214S1	63600	1																	27400	1
NURE Seds[e]	DSOK215S1	54200	1																	22000	1
NURE Seds[e]	DSOK216S1	70700	1																	30100	1
NURE Seds[e]	DSOK218S1	58100	1																	28600	1
NURE Seds[e]	DSOK219S1	59600	1																	30300	1
NURE Seds[e]	DSOK220S1	52400	1																	17900	1
NURE Seds[e]	DSOK221S1	62100	1																	23500	1
NURE Seds[e]	DSOK222S1	43400	1																	31400	1
NURE Seds[e]	DSOK223S1	46900	1																	29600	1
NURE Seds[e]	DSOK225S1	44600	1																	32100	1
NURE Seds[e]	DSOK226S1	45700	1																	27200	1
NURE Seds[e]	DSOK227S1	54200	1																	35900	1
NURE Seds[e]	DSOK229S1	54000	1																	28300	1
NURE Seds[e]	DSOK230S1	51900	1																	32100	1
NURE Seds[e]	DSOK231S1	68600	1																	61400	1
NURE Seds[e]	DSOK232S1	57500	1																	34800	1
NURE Seds[e]	DSOK233S1	39500	1																	22500	1
NURE Seds[e]	DSOK235S1	55100	1																	27500	1
NURE Seds[e]	DSOK236S1	72000	1																	30800	1
NURE Seds[e]	DSOK237S1	55400	1																	25700	1
NURE Seds[e]	DSOK238S1	56600	1																	29400	1
NURE Seds[e]	DSOK239S1	60200	1																	27100	1
NURE Seds[e]	DSOK240S1	61500	1																	19100	1
NURE Seds[e]	DSOK241S1	57200	1																	28100	1
NURE Seds[e]	DSOK242S1	60100	1																	21100	1
NURE Seds[e]	DSOK245S1	57400	1																	26100	1
NURE Seds[e]	DSOK246S1	57200	1																	50100	1
NURE Seds[e]	DSOK247S1	48000	1																	28400	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK205S1			790	1											60	1		
NURE Seds[e]	DSOK206S1			580	1											60	1		
NURE Seds[e]	DSOK208S1			550	1											50	1		
NURE Seds[e]	DSOK209S1			580	1											40	1		
NURE Seds[e]	DSOK210S1			750	1											50	1		
NURE Seds[e]	DSOK211S1			720	1											60	1		
NURE Seds[e]	DSOK213S1			640	1											60	1		
NURE Seds[e]	DSOK214S1			2220	1											10	0		
NURE Seds[e]	DSOK215S1			820	1											80	1		
NURE Seds[e]	DSOK216S1			1010	1											40	1		
NURE Seds[e]	DSOK218S1			810	1											70	1		
NURE Seds[e]	DSOK219S1			1120	1											80	1		
NURE Seds[e]	DSOK220S1			270	1											30	1		
NURE Seds[e]	DSOK221S1			1140	1											50	1		
NURE Seds[e]	DSOK222S1			340	1											1080	1		
NURE Seds[e]	DSOK223S1			600	1											100	1		
NURE Seds[e]	DSOK225S1			630	1											170	1		
NURE Seds[e]	DSOK226S1			540	1											80	1		
NURE Seds[e]	DSOK227S1			630	1											80	1		
NURE Seds[e]	DSOK229S1			610	1											80	1		
NURE Seds[e]	DSOK230S1			450	1											670	1		
NURE Seds[e]	DSOK231S1			2960	1											100	1		
NURE Seds[e]	DSOK232S1			910	1											190	1		
NURE Seds[e]	DSOK233S1			480	1											60	1		
NURE Seds[e]	DSOK235S1			760	1											50	1		
NURE Seds[e]	DSOK236S1			860	1											80	1		
NURE Seds[e]	DSOK237S1			1810	1											80	1		
NURE Seds[e]	DSOK238S1			980	1											80	1		
NURE Seds[e]	DSOK239S1			1010	1											60	1		
NURE Seds[e]	DSOK240S1			930	1											50	1		
NURE Seds[e]	DSOK241S1			890	1											70	1		
NURE Seds[e]	DSOK242S1			470	1											100	1		
NURE Seds[e]	DSOK245S1			710	1											60	1		
NURE Seds[e]	DSOK246S1			1150	1											140	1		
NURE Seds[e]	DSOK247S1			590	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK249S1	74000	1																	15900	1
NURE Seds[e]	DSOK250S1	63400	1																	26900	1
NURE Seds[e]	DSOK251S1	51100	1																	24800	1
NURE Seds[e]	DSOK252S1	60700	1																	23300	1
NURE Seds[e]	DSOK253S1	54400	1																	25600	1
NURE Seds[e]	DSOK255S1	53500	1																	34200	1
NURE Seds[e]	DSOK256S1	47400	1																	25500	1
NURE Seds[e]	DSOK257S1	59100	1																	29000	1
NURE Seds[e]	DSOK258S1	64800	1																	46600	1
NURE Seds[e]	DSOK259S1	48100	1																	23200	1
NURE Seds[e]	DSOK261S1	54900	1																	29100	1
NURE Seds[e]	DSOK262S1	43000	1																	37100	1
NURE Seds[e]	DSOK266S1	54800	1																	26100	1
NURE Seds[e]	DSOK273S1	59600	1																	34000	1
NURE Seds[e]	DSOK275S1	60400	1																	22000	1
NURE Seds[e]	DSOK276S1	58300	1																	23300	1
NURE Seds[e]	DSOK278S1	51200	1																	30800	1
NURE Seds[e]	DSOK279S1	48000	1																	27100	1
NURE Seds[e]	DSOK281S1	57900	1																	31800	1
NURE Seds[e]	DSOK282S1	54000	1																	32800	1
NURE Seds[e]	DSOK296S1	49000	1																	39100	1
NURE Seds[e]	DSOK297S1	47700	1																	49400	1
NURE Seds[e]	DSOK298S1	53300	1																	36500	1
NURE Seds[e]	DSOK299S1	45300	1																	33100	1
NURE Seds[e]	DSOK300S1	60700	1																	33200	1
NURE Seds[e]	DSOK308S1	58100	1																	33500	1
NURE Seds[e]	DSOK311S1	68700	1																	29200	1
NURE Seds[e]	DSOK314S1	46600	1																	31500	1
NURE Seds[e]	DSOK318S1	65900	1																	45900	1
NURE Seds[e]	DSOK319S1	53400	1																	32700	1
NURE Seds[e]	DSOK320S1	29900	1																	13700	1
NURE Seds[e]	DSOK321S1	48000	1																	19600	1
NURE Seds[e]	DSOK328S1	67600	1																	30500	1
NURE Seds[e]	DSOK329S1	53400	1																	30600	1
NURE Seds[e]	DSOK330S1	55100	1																	36500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK249S1			400	1											40	1		
NURE Seds[e]	DSOK250S1			690	1											70	1		
NURE Seds[e]	DSOK251S1			640	1											40	1		
NURE Seds[e]	DSOK252S1			640	1											40	1		
NURE Seds[e]	DSOK253S1			620	1											60	1		
NURE Seds[e]	DSOK255S1			830	1											70	1		
NURE Seds[e]	DSOK256S1			2890	1											70	1		
NURE Seds[e]	DSOK257S1			1170	1											60	1		
NURE Seds[e]	DSOK258S1			1300	1											160	1		
NURE Seds[e]	DSOK259S1			690	1											70	1		
NURE Seds[e]	DSOK261S1			530	1											70	1		
NURE Seds[e]	DSOK262S1			660	1											150	1		
NURE Seds[e]	DSOK266S1			690	1											90	1		
NURE Seds[e]	DSOK273S1			590	1											90	1		
NURE Seds[e]	DSOK275S1			580	1											90	1		
NURE Seds[e]	DSOK276S1			550	1											70	1		
NURE Seds[e]	DSOK278S1			590	1											90	1		
NURE Seds[e]	DSOK279S1			660	1											80	1		
NURE Seds[e]	DSOK281S1			850	1											70	1		
NURE Seds[e]	DSOK282S1			910	1											120	1		
NURE Seds[e]	DSOK296S1			960	1											140	1		
NURE Seds[e]	DSOK297S1			690	1											100	1		
NURE Seds[e]	DSOK298S1			1190	1											110	1		
NURE Seds[e]	DSOK299S1			760	1											80	1		
NURE Seds[e]	DSOK300S1			730	1											100	1		
NURE Seds[e]	DSOK308S1			1300	1											100	1		
NURE Seds[e]	DSOK311S1			610	1											90	1		
NURE Seds[e]	DSOK314S1			1850	1											50	1		
NURE Seds[e]	DSOK318S1			780	1											190	1		
NURE Seds[e]	DSOK319S1			990	1											190	1		
NURE Seds[e]	DSOK320S1			330	1											30	1		
NURE Seds[e]	DSOK321S1			680	1											40	1		
NURE Seds[e]	DSOK328S1			930	1											90	1		
NURE Seds[e]	DSOK329S1			480	1											70	1		
NURE Seds[e]	DSOK330S1			1140	1											130	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK331S1	49700	1																	27800	1
NURE Seds[e]	DSOK333S1	62600	1																	27800	1
NURE Seds[e]	DSOK335S1	56400	1																	27300	1
NURE Seds[e]	DSOK336S1	59700	1																	32300	1
NURE Seds[e]	DSOK338S1	57700	1																	45900	1
NURE Seds[e]	DSOK339S1	58200	1																	45600	1
NURE Seds[e]	DSOK341S1	64200	1																	31500	1
NURE Seds[e]	DSOK342S1	60700	1																	32400	1
NURE Seds[e]	DSOK344S1	58800	1																	30700	1
NURE Seds[e]	DSOK346S1	61400	1																	33700	1
NURE Seds[e]	DSOK347S1	63700	1																	33200	1
NURE Seds[e]	DSOK348S1	52400	1																	22100	1
NURE Seds[e]	DSOK349S1	48300	1																	23700	1
NURE Seds[e]	DSOK350S1	48600	1																	34800	1
NURE Seds[e]	DSOK351S1	48700	1																	19600	1
NURE Seds[e]	DSOK352S1	500	0																	34200	1
NURE Seds[e]	DSOK353S1	53600	1																	29000	1
NURE Seds[e]	DSOK356S1	54000	1																	24400	1
NURE Seds[e]	DSOK357S1	61100	1																	33400	1
NURE Seds[e]	DSOK358S1	58000	1																	25100	1
NURE Seds[e]	DSOK359S1	60200	1																	27300	1
NURE Seds[e]	DSOK360S1	65400	1																	28100	1
NURE Seds[e]	DSOK363S1	71500	1																	25100	1
NURE Seds[e]	DSOK365S1	51800	1																	26600	1
NURE Seds[e]	DSOK367S1	64100	1																	27400	1
NURE Seds[e]	DSOK378S1	49700	1																	22300	1
NURE Seds[e]	DSOK379S1	40800	1																	32200	1
NURE Seds[e]	DSOK383S1	35800	1																	20300	1
NURE Seds[e]	DSOK384S1	43100	1																	21700	1
NURE Seds[e]	DSOK385S1	43200	1																	23300	1
NURE Seds[e]	DSOK386S1	54900	1																	18900	1
NURE Seds[e]	DSOK391S1	500	0																	16200	1
NURE Seds[e]	DSOK392S1	58800	1																	27800	1
NURE Seds[e]	DSOK393S1	65200	1																	23900	1
NURE Seds[e]	DSOK395S1	37300	1																	22400	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK331S1			840	1											80	1		
NURE Seds[e]	DSOK333S1			780	1											80	1		
NURE Seds[e]	DSOK335S1			1000	1											80	1		
NURE Seds[e]	DSOK336S1			690	1											90	1		
NURE Seds[e]	DSOK338S1			1190	1											160	1		
NURE Seds[e]	DSOK339S1			970	1											140	1		
NURE Seds[e]	DSOK341S1			900	1											110	1		
NURE Seds[e]	DSOK342S1			930	1											70	1		
NURE Seds[e]	DSOK344S1			680	1											70	1		
NURE Seds[e]	DSOK346S1			770	1											150	1		
NURE Seds[e]	DSOK347S1			680	1											80	1		
NURE Seds[e]	DSOK348S1			620	1											60	1		
NURE Seds[e]	DSOK349S1			1100	1											80	1		
NURE Seds[e]	DSOK350S1			700	1											90	1		
NURE Seds[e]	DSOK351S1			430	1											70	1		
NURE Seds[e]	DSOK352S1			20	0											10	0		
NURE Seds[e]	DSOK353S1			920	1											90	1		
NURE Seds[e]	DSOK356S1			610	1											50	1		
NURE Seds[e]	DSOK357S1			2210	1											90	1		
NURE Seds[e]	DSOK358S1			1120	1											80	1		
NURE Seds[e]	DSOK359S1			810	1											60	1		
NURE Seds[e]	DSOK360S1			470	1											50	1		
NURE Seds[e]	DSOK363S1			630	1											70	1		
NURE Seds[e]	DSOK365S1			1620	1											70	1		
NURE Seds[e]	DSOK367S1			600	1											80	1		
NURE Seds[e]	DSOK378S1			650	1											50	1		
NURE Seds[e]	DSOK379S1			1080	1											90	1		
NURE Seds[e]	DSOK383S1			640	1											70	1		
NURE Seds[e]	DSOK384S1			470	1											60	1		
NURE Seds[e]	DSOK385S1			500	1											50	1		
NURE Seds[e]	DSOK386S1			440	1											50	1		
NURE Seds[e]	DSOK391S1			20	0											10	0		
NURE Seds[e]	DSOK392S1			1400	1											50	1		
NURE Seds[e]	DSOK393S1			750	1											40	1		
NURE Seds[e]	DSOK395S1			1370	1											40	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK397S1	48100	1																	20300	1
NURE Seds[e]	DSOK398S1	52500	1																	21900	1
NURE Seds[e]	DSOK401S1	49700	1																	24000	1
NURE Seds[e]	DSOK403S1	52300	1																	28800	1
NURE Seds[e]	DSOK409S1	55700	1																	25100	1
NURE Seds[e]	DSOK410S1	46000	1																	16500	1
NURE Seds[e]	DSOK412S1	39800	1																	18300	1
NURE Seds[e]	DSOK414S1	51200	1																	26500	1
NURE Seds[e]	DSOK418S1	61500	1																	22400	1
NURE Seds[e]	DSOK419S1	53500	1																	23200	1
NURE Seds[e]	DSOK421S1	31900	1																	18300	1
NURE Seds[e]	DSOK422S1	52400	1																	19400	1
NURE Seds[e]	DSOK426S1	55100	1																	24600	1
NURE Seds[e]	DSOK428S1	61600	1																	19600	1
NURE Seds[e]	DSOK429S1	58800	1																	25000	1
NURE Seds[e]	DSOK431S1	59900	1																	27300	1
NURE Seds[e]	DSOK432S1	43300	1																	24000	1
NURE Seds[e]	DSOK433S1	65700	1																	30100	1
NURE Seds[e]	DSOK434S1	59800	1																	25900	1
NURE Seds[e]	DSOK435S1	66900	1																	30400	1
NURE Seds[e]	DSOK436S1	63700	1																	22500	1
NURE Seds[e]	DSOK437S1	54200	1																	28900	1
NURE Seds[e]	DSOK438S1	58800	1																	15400	1
NURE Seds[e]	DSOK440S1	55100	1																	23000	1
NURE Seds[e]	DSOK441S1	63600	1																	30400	1
NURE Seds[e]	DSOK442S1	55100	1																	29100	1
NURE Seds[e]	DSOK443S1	67800	1																	16900	1
NURE Seds[e]	DSOK444S1	63600	1																	24000	1
NURE Seds[e]	DSOK445S1	72700	1																	26800	1
NURE Seds[e]	DSOK446S1	52100	1																	23800	1
NURE Seds[e]	DSOK447S1	52000	1																	15700	1
NURE Seds[e]	DSOK449S1	67100	1																	25500	1
NURE Seds[e]	DSOK450S1	57300	1																	13200	1
NURE Seds[e]	DSOK451S1	54400	1																	24900	1
NURE Seds[e]	DSOK454S1	50300	1																	35200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK397S1			430	1											40	1		
NURE Seds[e]	DSOK398S1			730	1											40	1		
NURE Seds[e]	DSOK401S1			490	1											40	1		
NURE Seds[e]	DSOK403S1			590	1											70	1		
NURE Seds[e]	DSOK409S1			510	1											40	1		
NURE Seds[e]	DSOK410S1			550	1											30	1		
NURE Seds[e]	DSOK412S1			540	1											60	1		
NURE Seds[e]	DSOK414S1			880	1											50	1		
NURE Seds[e]	DSOK418S1			860	1											50	1		
NURE Seds[e]	DSOK419S1			930	1											70	1		
NURE Seds[e]	DSOK421S1			460	1											30	1		
NURE Seds[e]	DSOK422S1			760	1											30	1		
NURE Seds[e]	DSOK426S1			620	1											50	1		
NURE Seds[e]	DSOK428S1			510	1											40	1		
NURE Seds[e]	DSOK429S1			980	1											60	1		
NURE Seds[e]	DSOK431S1			820	1											50	1		
NURE Seds[e]	DSOK432S1			580	1											40	1		
NURE Seds[e]	DSOK433S1			860	1											60	1		
NURE Seds[e]	DSOK434S1			460	1											60	1		
NURE Seds[e]	DSOK435S1			670	1											70	1		
NURE Seds[e]	DSOK436S1			570	1											60	1		
NURE Seds[e]	DSOK437S1			980	1											50	1		
NURE Seds[e]	DSOK438S1			460	1											40	1		
NURE Seds[e]	DSOK440S1			450	1											50	1		
NURE Seds[e]	DSOK441S1			1030	1											70	1		
NURE Seds[e]	DSOK442S1			810	1											50	1		
NURE Seds[e]	DSOK443S1			540	1											40	1		
NURE Seds[e]	DSOK444S1			660	1											50	1		
NURE Seds[e]	DSOK445S1			1070	1											70	1		
NURE Seds[e]	DSOK446S1			440	1											70	1		
NURE Seds[e]	DSOK447S1			430	1											50	1		
NURE Seds[e]	DSOK449S1			430	1											50	1		
NURE Seds[e]	DSOK450S1			620	1											40	1		
NURE Seds[e]	DSOK451S1			550	1											60	1		
NURE Seds[e]	DSOK454S1			920	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK455S1	50400	1																	34300	1
NURE Seds[e]	DSOK456S1	53900	1																	28200	1
NURE Seds[e]	DSOK457S1	66200	1																	27600	1
NURE Seds[e]	DSOK458S1	67400	1																	31200	1
NURE Seds[e]	DSOK459S1	65500	1																	28600	1
NURE Seds[e]	DSOK460S1	82100	1																	23900	1
NURE Seds[e]	DSOK461S1	62800	1																	26100	1
NURE Seds[e]	DSOK463S1	54400	1																	25100	1
NURE Seds[e]	DSOL001S1	61100	1																	31000	1
NURE Seds[e]	DSOL003S1	56600	1																		
NURE Seds[e]	DSOL004S1	45700	1																	30000	1
NURE Seds[e]	DSOL005S1	48000	1																		
NURE Seds[e]	DSOL006S1	50500	1																	25000	1
NURE Seds[e]	DSOL008S1	59300	1																	64900	1
NURE Seds[e]	DSOL009S1	52900	1																		
NURE Seds[e]	DSOL011S1	46200	1																	27800	1
NURE Seds[e]	DSOL012S1	38500	1																	15700	1
NURE Seds[e]	DSOL013S1	45000	1																	18100	1
NURE Seds[e]	DSOL014S1	59600	1																	19200	1
NURE Seds[e]	DSOL016S1	60800	1																	27800	1
NURE Seds[e]	DSOL017S1	64600	1																	29600	1
NURE Seds[e]	DSOL018S1	59200	1																	38900	1
NURE Seds[e]	DSOL019S1	58200	1																	31200	1
NURE Seds[e]	DSOL022S1	58600	1																	39100	1
NURE Seds[e]	DSOL023S1	60500	1																	2000	1
NURE Seds[e]	DSOL025S1	59600	1																	29300	1
NURE Seds[e]	DSOL027S1	54500	1																	26000	1
NURE Seds[e]	DSOL028S1	61700	1																	21400	1
NURE Seds[e]	DSOL029S1	3700	1																	2500	1
NURE Seds[e]	DSOL031S1	58900	1																	24400	1
NURE Seds[e]	DSOL032S1	41600	1																	18200	1
NURE Seds[e]	DSOL033S1	66100	1																	29700	1
NURE Seds[e]	DSOL034S1	62800	1																	20500	1
NURE Seds[e]	DSOL035S1	58800	1																	26700	1
NURE Seds[e]	DSOL036S1	72700	1																	30500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK455S1			780	1											80	1		
NURE Seds[e]	DSOK456S1			1500	1											70	1		
NURE Seds[e]	DSOK457S1			940	1											40	1		
NURE Seds[e]	DSOK458S1			580	1											50	1		
NURE Seds[e]	DSOK459S1			1050	1											60	1		
NURE Seds[e]	DSOK460S1			1070	1											60	1		
NURE Seds[e]	DSOK461S1			730	1											60	1		
NURE Seds[e]	DSOK463S1			560	1											60	1		
NURE Seds[e]	DSOL001S1			650	1											60	1		
NURE Seds[e]	DSOL003S1			1650	1											70	1		
NURE Seds[e]	DSOL004S1			530	1											70	1		
NURE Seds[e]	DSOL005S1			510	1											70	1		
NURE Seds[e]	DSOL006S1			920	1											60	1		
NURE Seds[e]	DSOL008S1			880	1											170	1		
NURE Seds[e]	DSOL009S1			450	1											60	1		
NURE Seds[e]	DSOL011S1			930	1											70	1		
NURE Seds[e]	DSOL012S1			640	1											40	1		
NURE Seds[e]	DSOL013S1			490	1											30	1		
NURE Seds[e]	DSOL014S1			530	1											60	1		
NURE Seds[e]	DSOL016S1			670	1											70	1		
NURE Seds[e]	DSOL017S1			1080	1											80	1		
NURE Seds[e]	DSOL018S1			750	1											110	1		
NURE Seds[e]	DSOL019S1			750	1											100	1		
NURE Seds[e]	DSOL022S1			770	1											60	1		
NURE Seds[e]	DSOL023S1			700	1											100	1		
NURE Seds[e]	DSOL025S1			960	1											50	1		
NURE Seds[e]	DSOL027S1			520	1											70	1		
NURE Seds[e]	DSOL028S1			610	1											30	1		
NURE Seds[e]	DSOL029S1			80	1											10	0		
NURE Seds[e]	DSOL031S1			940	1											70	1		
NURE Seds[e]	DSOL032S1			410	1											40	1		
NURE Seds[e]	DSOL033S1			850	1											50	1		
NURE Seds[e]	DSOL034S1			510	1											30	1		
NURE Seds[e]	DSOL035S1			350	1											40	1		
NURE Seds[e]	DSOL036S1			300	1											50	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL039S1	66800	1																	30500	1
NURE Seds[e]	DSOL040S1	61800	1																	24400	1
NURE Seds[e]	DSOL041S1	65000	1																	25400	1
NURE Seds[e]	DSOL042S1	61800	1																	25600	1
NURE Seds[e]	DSOL043S1	62400	1																	21000	1
NURE Seds[e]	DSOL044S1	60100	1																	23500	1
NURE Seds[e]	DSOL045S1	61600	1																	30800	1
NURE Seds[e]	DSOL046S1	54200	1																	44800	1
NURE Seds[e]	DSOL048S1	67200	1																	37600	1
NURE Seds[e]	DSOL049S1	65600	1																	26100	1
NURE Seds[e]	DSOL050S1	54000	1																	36000	1
NURE Seds[e]	DSOL052S1	61500	1																	28900	1
NURE Seds[e]	DSOL053S1	60500	1																	25700	1
NURE Seds[e]	DSOL054S1	61600	1																	23800	1
NURE Seds[e]	DSOL057S1	57000	1																		
NURE Seds[e]	DSOL058S1	56200	1																	29300	1
NURE Seds[e]	DSOL059S1	5100	1																		
NURE Seds[e]	DSOL060S1	64100	1																	37600	1
NURE Seds[e]	DSOL061S1	52000	1																	21600	1
NURE Seds[e]	DSOL062S1	54600	1																	22900	1
NURE Seds[e]	DSOL063S1	61300	1																	35600	1
NURE Seds[e]	DSOL064S1	61900	1																	34100	1
NURE Seds[e]	DSOL066S1	59300	1																		
NURE Seds[e]	DSOL067S1	52600	1																		
NURE Seds[e]	DSOL068S1	50700	1																	22700	1
NURE Seds[e]	DSOL069S1	52900	1																	34100	1
NURE Seds[e]	DSOL071S1	55800	1																	45600	1
NURE Seds[e]	DSOL073S1	61700	1																	34200	1
NURE Seds[e]	DSOL074S1	61700	1																	29500	1
NURE Seds[e]	DSOL075S1	57000	1																	45000	1
NURE Seds[e]	DSOL076S1	65700	1																	33100	1
NURE Seds[e]	DSOL077S1	58100	1																	27500	1
NURE Seds[e]	DSOL078S1	59500	1																	23100	1
NURE Seds[e]	DSOL079S1	62200	1																		
NURE Seds[e]	DSOL080S1	63000	1																	31900	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL039S1			570	1											60	1		
NURE Seds[e]	DSOL040S1			870	1											50	1		
NURE Seds[e]	DSOL041S1			360	1											40	1		
NURE Seds[e]	DSOL042S1			580	1											40	1		
NURE Seds[e]	DSOL043S1			500	1											50	1		
NURE Seds[e]	DSOL044S1			510	1											50	1		
NURE Seds[e]	DSOL045S1			600	1											60	1		
NURE Seds[e]	DSOL046S1			730	1											90	1		
NURE Seds[e]	DSOL048S1			630	1											70	1		
NURE Seds[e]	DSOL049S1			540	1											60	1		
NURE Seds[e]	DSOL050S1			650	1											80	1		
NURE Seds[e]	DSOL052S1			780	1											80	1		
NURE Seds[e]	DSOL053S1			540	1											60	1		
NURE Seds[e]	DSOL054S1			950	1											60	1		
NURE Seds[e]	DSOL057S1			430	1											50	1		
NURE Seds[e]	DSOL058S1			860	1											80	1		
NURE Seds[e]	DSOL059S1			750	1											10	0		
NURE Seds[e]	DSOL060S1			970	1											100	1		
NURE Seds[e]	DSOL061S1			290	1											40	1		
NURE Seds[e]	DSOL062S1			370	1											40	1		
NURE Seds[e]	DSOL063S1			670	1											70	1		
NURE Seds[e]	DSOL064S1			960	1											60	1		
NURE Seds[e]	DSOL066S1			640	1											100	1		
NURE Seds[e]	DSOL067S1			600	1											90	1		
NURE Seds[e]	DSOL068S1			460	1											50	1		
NURE Seds[e]	DSOL069S1			620	1											60	1		
NURE Seds[e]	DSOL071S1			730	1											110	1		
NURE Seds[e]	DSOL073S1			600	1											80	1		
NURE Seds[e]	DSOL074S1			1090	1											120	1		
NURE Seds[e]	DSOL075S1			880	1											150	1		
NURE Seds[e]	DSOL076S1			800	1											100	1		
NURE Seds[e]	DSOL077S1			550	1											70	1		
NURE Seds[e]	DSOL078S1			900	1											70	1		
NURE Seds[e]	DSOL079S1			790	1											80	1		
NURE Seds[e]	DSOL080S1			630	1											90	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL081S1	55500	1																	37600	1
NURE Seds[e]	DSOL082S1	58600	1																	46500	1
NURE Seds[e]	DSOL084S1	57300	1																	32000	1
NURE Seds[e]	DSOL085S1	58000	1																	35900	1
NURE Seds[e]	DSOL088S1	65900	1																	43600	1
NURE Seds[e]	DSOL090S1	50000	1																	51200	1
NURE Seds[e]	DSOL091S1	61300	1																	59300	1
NURE Seds[e]	DSOL092S1	58000	1																	35100	1
NURE Seds[e]	DSOL093S1	60700	1																	38800	1
NURE Seds[e]	DSOL094S1	53400	1																	28400	1
NURE Seds[e]	DSOL095S1	48800	1																	41200	1
NURE Seds[e]	DSOL096S1	57900	1																	33000	1
NURE Seds[e]	DSOL098S1	53400	1																	28400	1
NURE Seds[e]	DSOL099S1	60200	1																	26300	1
NURE Seds[e]	DSOL100S1	57700	1																	26700	1
NURE Seds[e]	DSOL101S1	50300	1																	26200	1
NURE Seds[e]	DSOL102S1	40500	1																	21100	1
NURE Seds[e]	DSOL103S1	68500	1																	25700	1
NURE Seds[e]	DSOL104S1	48200	1																	25600	1
NURE Seds[e]	DSOL105S1	66400	1																	29100	1
NURE Seds[e]	DSOL106S1	58900	1																	22200	1
NURE Seds[e]	DSOL107S1	58600	1																	23500	1
NURE Seds[e]	DSOL108S1	58500	1																	25000	1
NURE Seds[e]	DSOL109S1	61200	1																	27500	1
NURE Seds[e]	DSOL110S1	19700	1																	14100	1
NURE Seds[e]	DSOL111S1	61600	1																	28900	1
NURE Seds[e]	DSOL112S1	69000	1																	25300	1
NURE Seds[e]	DSOL113S1	63200	1																	26200	1
NURE Seds[e]	DSOL114S1	63800	1																	33100	1
NURE Seds[e]	DSOL115S1	62200	1																	38000	1
NURE Seds[e]	DSOL117S1	50500	1																	46100	1
NURE Seds[e]	DSOL118S1	40300	1																	23100	1
NURE Seds[e]	DSOL119S1	56700	1																	39800	1
NURE Seds[e]	DSOL120S1	37900	1																	27100	1
NURE Seds[e]	DSOL121S1	61900	1																	35800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL081S1			790	1											90	1		
NURE Seds[e]	DSOL082S1			840	1											120	1		
NURE Seds[e]	DSOL084S1			790	1											100	1		
NURE Seds[e]	DSOL085S1			830	1											90	1		
NURE Seds[e]	DSOL088S1			1590	1											110	1		
NURE Seds[e]	DSOL090S1			840	1											120	1		
NURE Seds[e]	DSOL091S1			1090	1											120	1		
NURE Seds[e]	DSOL092S1			980	1											80	1		
NURE Seds[e]	DSOL093S1			1080	1											90	1		
NURE Seds[e]	DSOL094S1			1500	1											60	1		
NURE Seds[e]	DSOL095S1			1210	1											130	1		
NURE Seds[e]	DSOL096S1			970	1											90	1		
NURE Seds[e]	DSOL098S1			500	1											50	1		
NURE Seds[e]	DSOL099S1			660	1											60	1		
NURE Seds[e]	DSOL100S1			820	1											70	1		
NURE Seds[e]	DSOL101S1			550	1											40	1		
NURE Seds[e]	DSOL102S1			440	1											40	1		
NURE Seds[e]	DSOL103S1			420	1											50	1		
NURE Seds[e]	DSOL104S1			590	1											80	1		
NURE Seds[e]	DSOL105S1			770	1											70	1		
NURE Seds[e]	DSOL106S1			770	1											50	1		
NURE Seds[e]	DSOL107S1			510	1											60	1		
NURE Seds[e]	DSOL108S1			950	1											80	1		
NURE Seds[e]	DSOL109S1			480	1											80	1		
NURE Seds[e]	DSOL110S1			470	1											20	1		
NURE Seds[e]	DSOL111S1			840	1											40	1		
NURE Seds[e]	DSOL112S1			790	1											50	1		
NURE Seds[e]	DSOL113S1			610	1											60	1		
NURE Seds[e]	DSOL114S1			1160	1											80	1		
NURE Seds[e]	DSOL115S1			3590	1											80	1		
NURE Seds[e]	DSOL117S1			810	1											140	1		
NURE Seds[e]	DSOL118S1			340	1											50	1		
NURE Seds[e]	DSOL119S1			720	1											100	1		
NURE Seds[e]	DSOL120S1			520	1											50	1		
NURE Seds[e]	DSOL121S1			960	1											130	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL122S1	58500	1																	28600	1
NURE Seds[e]	DSOL123S1	60900	1																	30600	1
NURE Seds[e]	DSOL124S1	62600	1																	43200	1
NURE Seds[e]	DSOL125S1	44500	1																	31000	1
NURE Seds[e]	DSOL126S1	56600	1																	41900	1
NURE Seds[e]	DSOL127S1	57500	1																	25500	1
NURE Seds[e]	DSOL128S1	53700	1																	28800	1
NURE Seds[e]	DSOL129S1	54600	1																	29800	1
NURE Seds[e]	DSOL130S1	55600	1																	26800	1
NURE Seds[e]	DSOL131S1	62100	1																	34100	1
NURE Seds[e]	DSOL132S1	56900	1																	24200	1
NURE Seds[e]	DSOL133S1	56300	1																	26900	1
NURE Seds[e]	DSOL147S1	32000	1																	15400	1
NURE Seds[e]	DSOL151S1	51000	1																	31300	1
NURE Seds[e]	DSOL156S1	64800	1																	46200	1
NURE Seds[e]	DSOL159S1	43400	1																	21100	1
NURE Seds[e]	DSOL160S1	64300	1																	40800	1
NURE Seds[e]	DSOL161S1	61800	1																	41400	1
NURE Seds[e]	DSOL163S1	60000	1																	37100	1
NURE Seds[e]	DSOL165S1	53000	1																	30400	1
NURE Seds[e]	DSOL168S1	58200	1																	31200	1
NURE Seds[e]	DSOL169S1	66300	1																	36900	1
NURE Seds[e]	DSOL170S1	55400	1																	31300	1
NURE Seds[e]	DSOL172S1	64500	1																	30800	1
NURE Seds[e]	DSOL180S1	47000	1																		
NURE Seds[e]	DSOL181S1	29000	1																		
NURE Seds[e]	DSOL182S1	53400	1																	29600	1
NURE Seds[e]	DSOL192S1	58700	1																		
NURE Seds[e]	DSOL195S1	65800	1																	41100	1
NURE Seds[e]	DSOL196S1	69500	1																	43000	1
NURE Seds[e]	DSOL197S1	57600	1																	37500	1
NURE Seds[e]	DSOL203S1	57800	1																	44300	1
NURE Seds[e]	DSOL207S1	62100	1																	41500	1
NURE Seds[e]	DSOL208S1	58700	1																	35400	1
NURE Seds[e]	DSOL209S1	59000	1																	52100	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL122S1			1010	1											60	1		
NURE Seds[e]	DSOL123S1			590	1											70	1		
NURE Seds[e]	DSOL124S1			1080	1											120	1		
NURE Seds[e]	DSOL125S1			2690	1											70	1		
NURE Seds[e]	DSOL126S1			2310	1											70	1		
NURE Seds[e]	DSOL127S1			920	1											60	1		
NURE Seds[e]	DSOL128S1			1470	1											60	1		
NURE Seds[e]	DSOL129S1			2140	1											70	1		
NURE Seds[e]	DSOL130S1			1250	1											50	1		
NURE Seds[e]	DSOL131S1			1350	1											70	1		
NURE Seds[e]	DSOL132S1			990	1											60	1		
NURE Seds[e]	DSOL133S1			1130	1											50	1		
NURE Seds[e]	DSOL147S1			430	1											30	1		
NURE Seds[e]	DSOL151S1			790	1											80	1		
NURE Seds[e]	DSOL156S1			980	1											160	1		
NURE Seds[e]	DSOL159S1			460	1											40	1		
NURE Seds[e]	DSOL160S1			1500	1											130	1		
NURE Seds[e]	DSOL161S1			1120	1											110	1		
NURE Seds[e]	DSOL163S1			680	1											140	1		
NURE Seds[e]	DSOL165S1			730	1											130	1		
NURE Seds[e]	DSOL168S1			580	1											50	1		
NURE Seds[e]	DSOL169S1			780	1											90	1		
NURE Seds[e]	DSOL170S1			1190	1											80	1		
NURE Seds[e]	DSOL172S1			850	1											80	1		
NURE Seds[e]	DSOL180S1			720	1											90	1		
NURE Seds[e]	DSOL181S1			1250	1											70	1		
NURE Seds[e]	DSOL182S1			690	1											80	1		
NURE Seds[e]	DSOL192S1			1690	1											100	1		
NURE Seds[e]	DSOL195S1			740	1											100	1		
NURE Seds[e]	DSOL196S1			970	1											140	1		
NURE Seds[e]	DSOL197S1			650	1											90	1		
NURE Seds[e]	DSOL203S1			940	1											80	1		
NURE Seds[e]	DSOL207S1			1130	1											100	1		
NURE Seds[e]	DSOL208S1			940	1											110	1		
NURE Seds[e]	DSOL209S1			900	1											170	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL212S1	62900	1																	35600	1
NURE Seds[e]	DSOL213S1	56000	1																	30300	1
NURE Seds[e]	DSOL215S1	58900	1																	45100	1
NURE Seds[e]	DSOL217S1	64100	1																	44200	1
NURE Seds[e]	DSOL218S1	62500	1																		
NURE Seds[e]	DSOL220S1	57500	1																		
NURE Seds[e]	DSOL221S1	61400	1																		
NURE Seds[e]	DSOL224S1	46700	1																	31700	1
NURE Seds[e]	DSOL225S1	64100	1																	38800	1
NURE Seds[e]	DSOL226S1	62000	1																	32900	1
NURE Seds[e]	DSOL227S1	76300	1																	39300	1
NURE Seds[e]	DSOL228S1	59700	1																	40900	1
NURE Seds[e]	DSOL229S1	72200	1																	34500	1
NURE Seds[e]	DSOL230S1	61200	1																	27200	1
NURE Seds[e]	DSOL233S1	64800	1																	37300	1
NURE Seds[e]	DSOL235S1	63800	1																	45300	1
NURE Seds[e]	DSOL236S1	60200	1																	35200	1
NURE Seds[e]	DSOL237S1	61500	1																	30500	1
NURE Seds[e]	DSOL238S1	50700	1																	35200	1
NURE Seds[e]	DSOL239S1	68000	1																	40400	1
NURE Seds[e]	DSOL241S1	60800	1																	41000	1
NURE Seds[e]	DSOL242S1	63800	1																	36600	1
NURE Seds[e]	DSOL243S1	64200	1																	40700	1
NURE Seds[e]	DSOL244S1	60900	1																	32800	1
NURE Seds[e]	DSOL245S1	57200	1																	39200	1
NURE Seds[e]	DSOL246S1	55400	1																	27500	1
NURE Seds[e]	DSOL247S1	62400	1																	24900	1
NURE Seds[e]	DSOL249S1	60600	1																	28600	1
NURE Seds[e]	DSOL250S1	54900	1																	33700	1
NURE Seds[e]	DSOL251S1	82400	1																	35800	1
NURE Seds[e]	DSOL252S1	40000	1																	17600	1
NURE Seds[e]	DSOL253S1	68700	1																	29900	1
NURE Seds[e]	DSOL254S1	50700	1																	33500	1
NURE Seds[e]	DSOL255S1	77000	1																	39700	1
NURE Seds[e]	DSOL257S1	77000	1																	39200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL212S1			550	1											130	1		
NURE Seds[e]	DSOL213S1			940	1											80	1		
NURE Seds[e]	DSOL215S1			710	1											140	1		
NURE Seds[e]	DSOL217S1			690	1											110	1		
NURE Seds[e]	DSOL218S1			780	1											120	1		
NURE Seds[e]	DSOL220S1			650	1											120	1		
NURE Seds[e]	DSOL221S1			810	1											150	1		
NURE Seds[e]	DSOL224S1			650	1											120	1		
NURE Seds[e]	DSOL225S1			990	1											110	1		
NURE Seds[e]	DSOL226S1			630	1											70	1		
NURE Seds[e]	DSOL227S1			460	1											90	1		
NURE Seds[e]	DSOL228S1			600	1											120	1		
NURE Seds[e]	DSOL229S1			770	1											100	1		
NURE Seds[e]	DSOL230S1			740	1											70	1		
NURE Seds[e]	DSOL233S1			630	1											120	1		
NURE Seds[e]	DSOL235S1			1670	1											130	1		
NURE Seds[e]	DSOL236S1			940	1											90	1		
NURE Seds[e]	DSOL237S1			1200	1											100	1		
NURE Seds[e]	DSOL238S1			620	1											90	1		
NURE Seds[e]	DSOL239S1			640	1											120	1		
NURE Seds[e]	DSOL241S1			960	1											160	1		
NURE Seds[e]	DSOL242S1			1000	1											120	1		
NURE Seds[e]	DSOL243S1			920	1											90	1		
NURE Seds[e]	DSOL244S1			720	1											150	1		
NURE Seds[e]	DSOL245S1			590	1											210	1		
NURE Seds[e]	DSOL246S1			770	1											120	1		
NURE Seds[e]	DSOL247S1			730	1											150	1		
NURE Seds[e]	DSOL249S1			810	1											120	1		
NURE Seds[e]	DSOL250S1			550	1											180	1		
NURE Seds[e]	DSOL251S1			940	1											150	1		
NURE Seds[e]	DSOL252S1			380	1											60	1		
NURE Seds[e]	DSOL253S1			960	1											70	1		
NURE Seds[e]	DSOL254S1			1000	1											60	1		
NURE Seds[e]	DSOL255S1			1060	1											140	1		
NURE Seds[e]	DSOL257S1			1650	1											120	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL258S1	78900	1																	40300	1
NURE Seds[e]	DSOL259S1	65000	1																	39200	1
NURE Seds[e]	DSOL260S1	73800	1																	44600	1
NURE Seds[e]	DSOL262S1	63600	1																	62200	1
NURE Seds[e]	DSOL264S1	53200	1																	58300	1
NURE Seds[e]	DSOL265S1	57600	1																	32000	1
NURE Seds[e]	DSOL266S1	59300	1																	41500	1
NURE Seds[e]	DSOL267S1	61000	1																	39500	1
NURE Seds[e]	DSOL268S1	64200	1																	30500	1
NURE Seds[e]	DSOL269S1	61600	1																	27600	1
NURE Seds[e]	DSOL271S1	65900	1																	38900	1
NURE Seds[e]	DSOL272S1	69000	1																	32200	1
NURE Seds[e]	DSOL273S1	62900	1																	42700	1
NURE Seds[e]	DSOL274S1	60100	1																	23700	1
NURE Seds[e]	DSOL275S1	63800	1																	37000	1
NURE Seds[e]	DSOL276S1	63000	1																	38400	1
NURE Seds[e]	DSOL277S1	59800	1																	32900	1
NURE Seds[e]	DSOL278S1	56300	1																	26300	1
NURE Seds[e]	DSOL279S1	40000	1																	23300	1
NURE Seds[e]	DSOL280S1	58500	1																	32800	1
NURE Seds[e]	DSOL281S1	63200	1																	48900	1
NURE Seds[e]	DSOL285S1	63000	1																	33300	1
NURE Seds[e]	DSOL287S1	62600	1																	44300	1
NURE Seds[e]	DSOL289S1	80900	1																	29800	1
NURE Seds[e]	DSOL290S1	69300	1																	26300	1
NURE Seds[e]	DSOL291S1	64700	1																	34900	1
NURE Seds[e]	DSOL292S1	60200	1																	29500	1
NURE Seds[e]	DSOL294S1	58600	1																	30600	1
NURE Seds[e]	DSOL298S1	64500	1																	28200	1
NURE Seds[e]	DSOL299S1	46300	1																	33500	1
NURE Seds[e]	DSOL300S1	60600	1																	24700	1
NURE Seds[e]	DSOL301S1	42900	1																	31800	1
NURE Seds[e]	DSOL303S1	54900	1																	32300	1
NURE Seds[e]	DSOL305S1	56800	1																	31600	1
NURE Seds[e]	DSOL306S1	58100	1																	29800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL258S1			1090	1											100	1		
NURE Seds[e]	DSOL259S1			670	1											80	1		
NURE Seds[e]	DSOL260S1			1080	1											130	1		
NURE Seds[e]	DSOL262S1			1180	1											230	1		
NURE Seds[e]	DSOL264S1			890	1											200	1		
NURE Seds[e]	DSOL265S1			500	1											80	1		
NURE Seds[e]	DSOL266S1			540	1											90	1		
NURE Seds[e]	DSOL267S1			1160	1											120	1		
NURE Seds[e]	DSOL268S1			730	1											80	1		
NURE Seds[e]	DSOL269S1			590	1											90	1		
NURE Seds[e]	DSOL271S1			1220	1											90	1		
NURE Seds[e]	DSOL272S1			1390	1											80	1		
NURE Seds[e]	DSOL273S1			790	1											150	1		
NURE Seds[e]	DSOL274S1			740	1											60	1		
NURE Seds[e]	DSOL275S1			920	1											90	1		
NURE Seds[e]	DSOL276S1			620	1											90	1		
NURE Seds[e]	DSOL277S1			790	1											100	1		
NURE Seds[e]	DSOL278S1			670	1											70	1		
NURE Seds[e]	DSOL279S1			570	1											80	1		
NURE Seds[e]	DSOL280S1			1010	1											80	1		
NURE Seds[e]	DSOL281S1			860	1											100	1		
NURE Seds[e]	DSOL285S1			760	1											70	1		
NURE Seds[e]	DSOL287S1			800	1											120	1		
NURE Seds[e]	DSOL289S1			790	1											80	1		
NURE Seds[e]	DSOL290S1			840	1											60	1		
NURE Seds[e]	DSOL291S1			640	1											90	1		
NURE Seds[e]	DSOL292S1			530	1											70	1		
NURE Seds[e]	DSOL294S1			730	1											70	1		
NURE Seds[e]	DSOL298S1			620	1											70	1		
NURE Seds[e]	DSOL299S1			730	1											90	1		
NURE Seds[e]	DSOL300S1			640	1											60	1		
NURE Seds[e]	DSOL301S1			620	1											80	1		
NURE Seds[e]	DSOL303S1			1000	1											60	1		
NURE Seds[e]	DSOL305S1			710	1											70	1		
NURE Seds[e]	DSOL306S1			840	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL307S1	66300	1																	35100	1
NURE Seds[e]	DSOL309S1	66400	1																	34900	1
NURE Seds[e]	DSOL310S1	66400	1																	35900	1
NURE Seds[e]	DSOL311S1	59900	1																	31200	1
NURE Seds[e]	DSOL312S1	56500	1																	34800	1
NURE Seds[e]	DSOL316S1	60100	1																	32000	1
NURE Seds[e]	DSOL317S1	65400	1																	32100	1
NURE Seds[e]	DSOL318S1	64200	1																	33500	1
NURE Seds[e]	DSOL319S1	61200	1																	27100	1
NURE Seds[e]	DSOL320S1	61800	1																	27800	1
NURE Seds[e]	DSOL323S1	63100	1																	34100	1
NURE Seds[e]	DSOL324S1	53700	1																	36500	1
NURE Seds[e]	DSOL325S1	59400	1																	70300	1
NURE Seds[e]	DSOL326S1	58900	1																	32200	1
NURE Seds[e]	DSOL327S1	61100	1																	39800	1
NURE Seds[e]	DSOL328S1	47800	1																	26400	1
NURE Seds[e]	DSOL329S1	89500	1																	22700	1
NURE Seds[e]	DSOL331S1	64700	1																	34500	1
NURE Seds[e]	DSOL333S1	63100	1																	38900	1
NURE Seds[e]	DSOL336S1	74500	1																	50100	1
NURE Seds[e]	DSOL337S1	62600	1																	32400	1
NURE Seds[e]	DSOL338S1	75300	1																	44300	1
NURE Seds[e]	DSOL339S1	62700	1																	44600	1
NURE Seds[e]	DSOL340S1	6700	1																	5400	1
NURE Seds[e]	DSOL341S1	66100	1																	26100	1
NURE Seds[e]	DSOL342S1	61700	1																	31600	1
NURE Seds[e]	DSOL343S1	68000	1																	31700	1
NURE Seds[e]	DSOL344S1	43800	1																	20200	1
NURE Seds[e]	DSOL345S1	62300	1																	25600	1
NURE Seds[e]	DSOL347S1	73100	1																	30700	1
NURE Seds[e]	DSOL348S1	60100	1																	21800	1
NURE Seds[e]	DSOL349S1	68000	1																	32100	1
NURE Seds[e]	DSOL352S1	64200	1																	30500	1
NURE Seds[e]	DSOL353S1	65700	1																	44600	1
NURE Seds[e]	DSOL354S1	53300	1																	25700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL307S1			730	1											130	1		
NURE Seds[e]	DSOL309S1			1400	1											110	1		
NURE Seds[e]	DSOL310S1			1210	1											90	1		
NURE Seds[e]	DSOL311S1			970	1											80	1		
NURE Seds[e]	DSOL312S1			580	1											100	1		
NURE Seds[e]	DSOL316S1			960	1											70	1		
NURE Seds[e]	DSOL317S1			690	1											60	1		
NURE Seds[e]	DSOL318S1			1280	1											70	1		
NURE Seds[e]	DSOL319S1			840	1											80	1		
NURE Seds[e]	DSOL320S1			850	1											90	1		
NURE Seds[e]	DSOL323S1			1030	1											90	1		
NURE Seds[e]	DSOL324S1			1090	1											60	1		
NURE Seds[e]	DSOL325S1			1260	1											270	1		
NURE Seds[e]	DSOL326S1			880	1											80	1		
NURE Seds[e]	DSOL327S1			1130	1											100	1		
NURE Seds[e]	DSOL328S1			780	1											50	1		
NURE Seds[e]	DSOL329S1			580	1											80	1		
NURE Seds[e]	DSOL331S1			640	1											90	1		
NURE Seds[e]	DSOL333S1			1110	1											120	1		
NURE Seds[e]	DSOL336S1			1100	1											150	1		
NURE Seds[e]	DSOL337S1			880	1											100	1		
NURE Seds[e]	DSOL338S1			1130	1											130	1		
NURE Seds[e]	DSOL339S1			840	1											110	1		
NURE Seds[e]	DSOL340S1			100	1											10	1		
NURE Seds[e]	DSOL341S1			690	1											80	1		
NURE Seds[e]	DSOL342S1			660	1											80	1		
NURE Seds[e]	DSOL343S1			800	1											80	1		
NURE Seds[e]	DSOL344S1			480	1											50	1		
NURE Seds[e]	DSOL345S1			610	1											70	1		
NURE Seds[e]	DSOL347S1			1380	1											110	1		
NURE Seds[e]	DSOL348S1			540	1											60	1		
NURE Seds[e]	DSOL349S1			640	1											70	1		
NURE Seds[e]	DSOL352S1			640	1											80	1		
NURE Seds[e]	DSOL353S1			1210	1											140	1		
NURE Seds[e]	DSOL354S1			710	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL356S1	48800	1																	37600	1
NURE Seds[e]	DSOL359S1	74100	1																	41100	1
NURE Seds[e]	DSOL360S1	60400	1																	45100	1
NURE Seds[e]	DSOL362S1	80600	1																	35500	1
NURE Seds[e]	DSOL363S1	12100	1																	5500	1
NURE Seds[e]	DSOL364S1	26300	1																	11000	1
NURE Seds[e]	DSOL365S1	57600	1																	28200	1
NURE Seds[e]	DSOL366S1	64200	1																	30800	1
NURE Seds[e]	DSOL368S1	64200	1																	31800	1
NURE Seds[e]	DSOL370S1	65400	1																	37000	1
NURE Seds[e]	DSOL372S1	62000	1																	29100	1
NURE Seds[e]	DSOL373S1	63100	1																	32800	1
NURE Seds[e]	DSOL374S1	28300	1																	19200	1
NURE Seds[e]	DSOL375S1	56800	1																	29100	1
NURE Seds[e]	DSOL377S1	69700	1																	31300	1
NURE Seds[e]	DSOL378S1	63900	1																	41400	1
NURE Seds[e]	DSOL379S1	66900	1																	32500	1
NURE Seds[e]	DSOL380S1	65300	1																	43300	1
NURE Seds[e]	DSOL381S1	36100	1																	36500	1
NURE Seds[e]	DSOL386S1	67300	1																	35600	1
NURE Seds[e]	DSOL387S1	63000	1																	38100	1
NURE Seds[e]	DSOL389S1	56600	1																	36100	1
NURE Seds[e]	DSOL391S1	61900	1																	37300	1
NURE Seds[e]	DSOL392S1	55300	1																	24500	1
NURE Seds[e]	DSOL393S1	61100	1																	24400	1
NURE Seds[e]	DSOL394S1	59300	1																	31900	1
NURE Seds[e]	DSOL395S1	63800	1																	34400	1
NURE Seds[e]	DSOL396S1	58000	1																	34900	1
NURE Seds[e]	DSOL398S1	63500	1																	31200	1
NURE Seds[e]	DSOL402S1	66300	1																	38200	1
NURE Seds[e]	DSOL404S1	59100	1																	40300	1
NURE Seds[e]	DSOL405S1	67100	1																	40200	1
NURE Seds[e]	DSOL406S1	65200	1																	34200	1
NURE Seds[e]	DSOL407S1	67900	1																	30400	1
NURE Seds[e]	DSOL409S1	80600	1																	42200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL356S1			900	1											100	1		
NURE Seds[e]	DSOL359S1			890	1											130	1		
NURE Seds[e]	DSOL360S1			710	1											110	1		
NURE Seds[e]	DSOL362S1			760	1											110	1		
NURE Seds[e]	DSOL363S1			130	1											20	1		
NURE Seds[e]	DSOL364S1			280	1											30	1		
NURE Seds[e]	DSOL365S1			700	1											60	1		
NURE Seds[e]	DSOL366S1			1270	1											80	1		
NURE Seds[e]	DSOL368S1			700	1											110	1		
NURE Seds[e]	DSOL370S1			710	1											120	1		
NURE Seds[e]	DSOL372S1			720	1											70	1		
NURE Seds[e]	DSOL373S1			610	1											70	1		
NURE Seds[e]	DSOL374S1			430	1											60	1		
NURE Seds[e]	DSOL375S1			840	1											80	1		
NURE Seds[e]	DSOL377S1			690	1											80	1		
NURE Seds[e]	DSOL378S1			750	1											100	1		
NURE Seds[e]	DSOL379S1			860	1											70	1		
NURE Seds[e]	DSOL380S1			1870	1											110	1		
NURE Seds[e]	DSOL381S1			600	1											100	1		
NURE Seds[e]	DSOL386S1			700	1											90	1		
NURE Seds[e]	DSOL387S1			1060	1											100	1		
NURE Seds[e]	DSOL389S1			640	1											90	1		
NURE Seds[e]	DSOL391S1			700	1											80	1		
NURE Seds[e]	DSOL392S1			970	1											60	1		
NURE Seds[e]	DSOL393S1			510	1											50	1		
NURE Seds[e]	DSOL394S1			1330	1											90	1		
NURE Seds[e]	DSOL395S1			680	1											120	1		
NURE Seds[e]	DSOL396S1			720	1											110	1		
NURE Seds[e]	DSOL398S1			610	1											60	1		
NURE Seds[e]	DSOL402S1			1020	1											100	1		
NURE Seds[e]	DSOL404S1			20	0											50	1		
NURE Seds[e]	DSOL405S1			710	1											80	1		
NURE Seds[e]	DSOL406S1			840	1											140	1		
NURE Seds[e]	DSOL407S1			710	1											100	1		
NURE Seds[e]	DSOL409S1			980	1											150	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL410S1	73300	1																	50500	1
NURE Seds[e]	DSOL412S1	62300	1																	27200	1
NURE Seds[e]	DSOL413S1	58400	1																	47200	1
NURE Seds[e]	DSOL414S1	61800	1																	53200	1
NURE Seds[e]	DSOL415S1	58600	1																	36500	1
NURE Seds[e]	DSOL416S1	64800	1																	50800	1
NURE Seds[e]	DSOL417S1	68400	1																	39500	1
NURE Seds[e]	DSOL418S1	65700	1																	40900	1
NURE Seds[e]	DSOL419S1	61100	1																	54000	1
NURE Seds[e]	DSOL420S1	78200	1																	41200	1
NURE Seds[e]	DSOL421S1	61600	1																	38700	1
NURE Seds[e]	DSOL422S1	59100	1																	27000	1
NURE Seds[e]	DSOL423S1	67700	1																	42100	1
NURE Seds[e]	DSOL424S1	62300	1																	43500	1
NURE Seds[e]	DSOL426S1	63200	1																	38400	1
NURE Seds[e]	DSOL427S1	63700	1																	31500	1
NURE Seds[e]	DSOL429S1	71500	1																	41200	1
NURE Seds[e]	DSOL430S1	72500	1																	48900	1
NURE Seds[e]	DSOL432S1	68500	1																		
NURE Seds[e]	DSOL433S1	62000	1																		
NURE Seds[e]	DSOL434S1	73300	1																		
NURE Seds[e]	DSOL435S1	68600	1																	38300	1
NURE Seds[e]	DSOL436S1	55000	1																	29100	1
NURE Seds[e]	DSOL438S1	59100	1																	39600	1
NURE Seds[e]	DSOL439S1	64200	1																	43800	1
NURE Seds[e]	DSOL440S1	65200	1																	23600	1
NURE Seds[e]	DSOL442S1	60300	1																	24100	1
NURE Seds[e]	DSOL443S1	54600	1																	29100	1
NURE Seds[e]	DSOL444S1	65900	1																	38300	1
NURE Seds[e]	DSOL445S1	61800	1																	57500	1
NURE Seds[e]	DSOL446S1	67900	1																	42100	1
NURE Seds[e]	DSOL448S1	67900	1																	57200	1
NURE Seds[e]	DSOL449S1	52800	1																	25900	1
NURE Seds[e]	DSOL450S1	59400	1																	49900	1
NURE Seds[e]	DSOL451S1	69900	1																	37600	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL410S1			1240	1											140	1		
NURE Seds[e]	DSOL412S1			800	1											80	1		
NURE Seds[e]	DSOL413S1			850	1											150	1		
NURE Seds[e]	DSOL414S1			1200	1											190	1		
NURE Seds[e]	DSOL415S1			570	1											150	1		
NURE Seds[e]	DSOL416S1			840	1											220	1		
NURE Seds[e]	DSOL417S1			490	1											90	1		
NURE Seds[e]	DSOL418S1			660	1											140	1		
NURE Seds[e]	DSOL419S1			800	1											150	1		
NURE Seds[e]	DSOL420S1			600	1											100	1		
NURE Seds[e]	DSOL421S1			720	1											90	1		
NURE Seds[e]	DSOL422S1			690	1											60	1		
NURE Seds[e]	DSOL423S1			890	1											180	1		
NURE Seds[e]	DSOL424S1			1550	1											100	1		
NURE Seds[e]	DSOL426S1			1110	1											130	1		
NURE Seds[e]	DSOL427S1			920	1											100	1		
NURE Seds[e]	DSOL429S1			550	1											90	1		
NURE Seds[e]	DSOL430S1			1130	1											120	1		
NURE Seds[e]	DSOL432S1			1250	1											100	1		
NURE Seds[e]	DSOL433S1			540	1											60	1		
NURE Seds[e]	DSOL434S1			1420	1											90	1		
NURE Seds[e]	DSOL435S1			810	1											120	1		
NURE Seds[e]	DSOL436S1			1410	1											80	1		
NURE Seds[e]	DSOL438S1			1410	1											120	1		
NURE Seds[e]	DSOL439S1			680	1											90	1		
NURE Seds[e]	DSOL440S1			1130	1											100	1		
NURE Seds[e]	DSOL442S1			1500	1											90	1		
NURE Seds[e]	DSOL443S1			1750	1											60	1		
NURE Seds[e]	DSOL444S1			1510	1											100	1		
NURE Seds[e]	DSOL445S1			920	1											180	1		
NURE Seds[e]	DSOL446S1			2440	1											120	1		
NURE Seds[e]	DSOL448S1			770	1											170	1		
NURE Seds[e]	DSOL449S1			450	1											40	1		
NURE Seds[e]	DSOL450S1			9490	1											170	1		
NURE Seds[e]	DSOL451S1			800	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL452S1	62500	1																	37000	1
NURE Seds[e]	DSOL453S1	66800	1																	34700	1
NURE Seds[e]	DSOL454S1	68300	1																	27200	1
NURE Seds[e]	DSOL457S1	64200	1																	30900	1
NURE Seds[e]	DSOL460S1	85000	1																	26500	1
NURE Seds[e]	DSOL461S1	66900	1																	30600	1
NURE Seds[e]	DSOL464S1	64600	1																	33300	1
NURE Seds[e]	DSOL467S1	23400	1																	14100	1
NURE Seds[e]	DSOL468S1	66400	1																	41500	1
NURE Seds[e]	DSOL469S1	77400	1																	15100	1
NURE Seds[e]	DSOL470S1	64400	1																	32000	1
NURE Seds[e]	DSOL471S1	64500	1																	40000	1
NURE Seds[e]	DSOL472S1	63700	1																	54900	1
NURE Seds[e]	DSOL473S1	65100	1																	72900	1
NURE Seds[e]	DSOL474S1	67100	1																	38300	1
NURE Seds[e]	DSOL475S1	65200	1																	39400	1
NURE Seds[e]	DSOL476S1	67100	1																		
NURE Seds[e]	DSOL477S1	66100	1																	38500	1
NURE Seds[e]	DSOL478S1	66200	1																	36600	1
NURE Seds[e]	DSOL479S1	64300	1																	31800	1
NURE Seds[e]	DSOL480S1	63600	1																	56100	1
NURE Seds[e]	DSOL482S1	63500	1																	42000	1
NURE Seds[e]	DSOL484S1	69300	1																	41300	1
NURE Seds[e]	DSOL485S1	58500	1																	39700	1
NURE Seds[e]	DSOL486S1	30100	1																	17500	1
NURE Seds[e]	DSOL487S1	66800	1																	49200	1
NURE Seds[e]	DSOL488S1	76300	1																	53200	1
NURE Seds[e]	DSOL489S1	64100	1																	40500	1
NURE Seds[e]	DSOL490S1	52200	1																	73000	1
NURE Seds[e]	DSOL491S1	63700	1																		
NURE Seds[e]	DSOL492S1	66800	1																	30700	1
NURE Seds[e]	DSOL493S1	57100	1																		
NURE Seds[e]	DSOL497S1	63900	1																	39000	1
NURE Seds[e]	DSOM002S1	62100	1																		
NURE Seds[e]	DSOM003S1	61400	1																	32300	1

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL452S1			850	1											130	1		
NURE Seds[e]	DSOL453S1			670	1											90	1		
NURE Seds[e]	DSOL454S1			620	1											60	1		
NURE Seds[e]	DSOL457S1			1060	1											120	1		
NURE Seds[e]	DSOL460S1			710	1											60	1		
NURE Seds[e]	DSOL461S1			620	1											70	1		
NURE Seds[e]	DSOL464S1			500	1											140	1		
NURE Seds[e]	DSOL467S1			910	1											30	1		
NURE Seds[e]	DSOL468S1			1190	1											110	1		
NURE Seds[e]	DSOL469S1			860	1											40	1		
NURE Seds[e]	DSOL470S1			1120	1											110	1		
NURE Seds[e]	DSOL471S1			900	1											100	1		
NURE Seds[e]	DSOL472S1			1200	1											180	1		
NURE Seds[e]	DSOL473S1			1160	1											200	1		
NURE Seds[e]	DSOL474S1			1020	1											110	1		
NURE Seds[e]	DSOL475S1			1200	1											100	1		
NURE Seds[e]	DSOL476S1			1030	1											120	1		
NURE Seds[e]	DSOL477S1			1660	1											100	1		
NURE Seds[e]	DSOL478S1			840	1											130	1		
NURE Seds[e]	DSOL479S1			740	1											80	1		
NURE Seds[e]	DSOL480S1			820	1											120	1		
NURE Seds[e]	DSOL482S1			680	1											130	1		
NURE Seds[e]	DSOL484S1			940	1											90	1		
NURE Seds[e]	DSOL485S1			820	1											80	1		
NURE Seds[e]	DSOL486S1			790	1											50	1		
NURE Seds[e]	DSOL487S1			870	1											110	1		
NURE Seds[e]	DSOL488S1			830	1											160	1		
NURE Seds[e]	DSOL489S1			760	1											140	1		
NURE Seds[e]	DSOL490S1			850	1											160	1		
NURE Seds[e]	DSOL491S1			780	1											60	1		
NURE Seds[e]	DSOL492S1			760	1											80	1		
NURE Seds[e]	DSOL493S1			1520	1											140	1		
NURE Seds[e]	DSOL497S1			550	1											100	1		
NURE Seds[e]	DSOM002S1			490	1											70	1		
NURE Seds[e]	DSOM003S1			730	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM009S1	71100	1																	19600	1
NURE Seds[e]	DSOM011S1	66400	1																	22600	1
NURE Seds[e]	DSOM012S1	81500	1																	26100	1
NURE Seds[e]	DSOM014S1	70900	1																	32800	1
NURE Seds[e]	DSOM015S1	76900	1																	34300	1
NURE Seds[e]	DSOM016S1	60100	1																	21900	1
NURE Seds[e]	DSOM017S1	64700	1																	16900	1
NURE Seds[e]	DSOM018S1	70900	1																	21000	1
NURE Seds[e]	DSOM021S1	69700	1																	28100	1
NURE Seds[e]	DSOM023S1	65400	1																	27000	1
NURE Seds[e]	DSOM025S1	77900	1																	24400	1
NURE Seds[e]	DSOM026S1	66600	1																	25500	1
NURE Seds[e]	DSOM027S1	67200	1																	18300	1
NURE Seds[e]	DSOM028S1	63000	1																	19800	1
NURE Seds[e]	DSOM029S1	75400	1																	20400	1
NURE Seds[e]	DSOM030S1	78400	1																	30500	1
NURE Seds[e]	DSOM031S1	73000	1																	32900	1
NURE Seds[e]	DSOM033S1	67700	1																	21700	1
NURE Seds[e]	DSOM034S1	59800	1																	22200	1
NURE Seds[e]	DSOM035S1	62000	1																	22200	1
NURE Seds[e]	DSOM036S1	57300	1																	24100	1
NURE Seds[e]	DSOM037S1	58200	1																	24700	1
NURE Seds[e]	DSOM038S1	60900	1																	21700	1
NURE Seds[e]	DSOM039S1	64300	1																	26600	1
NURE Seds[e]	DSOM040S1	57700	1																	19300	1
NURE Seds[e]	DSOM041S1	69700	1																	38200	1
NURE Seds[e]	DSOM042S1	69700	1																	19500	1
NURE Seds[e]	DSOM043S1	69300	1																	26900	1
NURE Seds[e]	DSOM044S1	63100	1																	15300	1
NURE Seds[e]	DSOM045S1	70800	1																	24500	1
NURE Seds[e]	DSOM049S1	66600	1																	27600	1
NURE Seds[e]	DSOM050S1	66900	1																	31500	1
NURE Seds[e]	DSOM051S1	63200	1																	41800	1
NURE Seds[e]	DSOM052S1	66100	1																	29800	1
NURE Seds[e]	DSOM055S1	69900	1																	28900	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM009S1			410	1											40	1		
NURE Seds[e]	DSOM011S1			620	1											50	1		
NURE Seds[e]	DSOM012S1			650	1											50	1		
NURE Seds[e]	DSOM014S1			840	1											70	1		
NURE Seds[e]	DSOM015S1			560	1											70	1		
NURE Seds[e]	DSOM016S1			1180	1											50	1		
NURE Seds[e]	DSOM017S1			580	1											50	1		
NURE Seds[e]	DSOM018S1			370	1											30	1		
NURE Seds[e]	DSOM021S1			370	1											70	1		
NURE Seds[e]	DSOM023S1			720	1											60	1		
NURE Seds[e]	DSOM025S1			670	1											50	1		
NURE Seds[e]	DSOM026S1			840	1											70	1		
NURE Seds[e]	DSOM027S1			650	1											40	1		
NURE Seds[e]	DSOM028S1			910	1											50	1		
NURE Seds[e]	DSOM029S1			470	1											50	1		
NURE Seds[e]	DSOM030S1			720	1											50	1		
NURE Seds[e]	DSOM031S1			480	1											70	1		
NURE Seds[e]	DSOM033S1			460	1											40	1		
NURE Seds[e]	DSOM034S1			1860	1											30	1		
NURE Seds[e]	DSOM035S1			470	1											30	1		
NURE Seds[e]	DSOM036S1			1060	1											40	1		
NURE Seds[e]	DSOM037S1			680	1											30	1		
NURE Seds[e]	DSOM038S1			630	1											50	1		
NURE Seds[e]	DSOM039S1			550	1											50	1		
NURE Seds[e]	DSOM040S1			800	1											50	1		
NURE Seds[e]	DSOM041S1			750	1											80	1		
NURE Seds[e]	DSOM042S1			410	1											40	1		
NURE Seds[e]	DSOM043S1			550	1											70	1		
NURE Seds[e]	DSOM044S1			320	1											30	1		
NURE Seds[e]	DSOM045S1			690	1											60	1		
NURE Seds[e]	DSOM049S1			580	1											80	1		
NURE Seds[e]	DSOM050S1			600	1											100	1		
NURE Seds[e]	DSOM051S1			700	1											90	1		
NURE Seds[e]	DSOM052S1			650	1											90	1		
NURE Seds[e]	DSOM055S1			580	1											50	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM056S1	66300	1																	27800	1
NURE Seds[e]	DSOM057S1	59900	1																	21300	1
NURE Seds[e]	DSOM058S1	57800	1																	28100	1
NURE Seds[e]	DSOM059S1	60700	1																	31500	1
NURE Seds[e]	DSOM060S1	55900	1																	26900	1
NURE Seds[e]	DSOM061S1	67200	1																	29200	1
NURE Seds[e]	DSOM062S1	64000	1																	40000	1
NURE Seds[e]	DSOM064S1	70100	1																	38900	1
NURE Seds[e]	DSOM066S1	65900	1																	23200	1
NURE Seds[e]	DSOM067S1	69700	1																	22800	1
NURE Seds[e]	DSOM068S1	62000	1																	39600	1
NURE Seds[e]	DSOM069S1	63000	1																	35500	1
NURE Seds[e]	DSOM071S1	69700	1																	19400	1
NURE Seds[e]	DSOM072S1	67900	1																	35700	1
NURE Seds[e]	DSOM073S1	73100	1																	24400	1
NURE Seds[e]	DSOM074S1	70300	1																	14400	1
NURE Seds[e]	DSOM076S1	67600	1																	23600	1
NURE Seds[e]	DSOM077S1	70600	1																	42600	1
NURE Seds[e]	DSOM078S1	62300	1																	23000	1
NURE Seds[e]	DSOM080S1	63900	1																	23000	1
NURE Seds[e]	DSOM086S1	68700	1																	13600	1
NURE Seds[e]	DSOM087S1	69200	1																	19000	1
NURE Seds[e]	DSOM089S1	64300	1																	22000	1
NURE Seds[e]	DSOM090S1	67000	1																	23900	1
NURE Seds[e]	DSOM091S1	64500	1																	23500	1
NURE Seds[e]	DSOM092S1	66900	1																	26000	1
NURE Seds[e]	DSOM093S1	60400	1																	23300	1
NURE Seds[e]	DSOM094S1	55700	1																	22300	1
NURE Seds[e]	DSOM095S1	61000	1																	26200	1
NURE Seds[e]	DSOM096S1	57900	1																	27700	1
NURE Seds[e]	DSOM097S1	63000	1																	29100	1
NURE Seds[e]	DSOM098S1	58000	1																	34800	1
NURE Seds[e]	DSOM100S1	70200	1																	89900	1
NURE Seds[e]	DSOM101S1	59500	1																	19400	1
NURE Seds[e]	DSOM102S1	77300	1																	22300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM056S1			850	1											60	1		
NURE Seds[e]	DSOM057S1			580	1											60	1		
NURE Seds[e]	DSOM058S1			670	1											70	1		
NURE Seds[e]	DSOM059S1			1490	1											90	1		
NURE Seds[e]	DSOM060S1			920	1											50	1		
NURE Seds[e]	DSOM061S1			940	1											80	1		
NURE Seds[e]	DSOM062S1			1900	1											70	1		
NURE Seds[e]	DSOM064S1			700	1											130	1		
NURE Seds[e]	DSOM066S1			910	1											60	1		
NURE Seds[e]	DSOM067S1			480	1											50	1		
NURE Seds[e]	DSOM068S1			1250	1											140	1		
NURE Seds[e]	DSOM069S1			1270	1											80	1		
NURE Seds[e]	DSOM071S1			420	1											50	1		
NURE Seds[e]	DSOM072S1			950	1											60	1		
NURE Seds[e]	DSOM073S1			500	1											60	1		
NURE Seds[e]	DSOM074S1			420	1											50	1		
NURE Seds[e]	DSOM076S1			580	1											60	1		
NURE Seds[e]	DSOM077S1			800	1											80	1		
NURE Seds[e]	DSOM078S1			1160	1											50	1		
NURE Seds[e]	DSOM080S1			610	1											60	1		
NURE Seds[e]	DSOM086S1			290	1											60	1		
NURE Seds[e]	DSOM087S1			310	1											40	1		
NURE Seds[e]	DSOM089S1			440	1											50	1		
NURE Seds[e]	DSOM090S1			430	1											70	1		
NURE Seds[e]	DSOM091S1			430	1											60	1		
NURE Seds[e]	DSOM092S1			700	1											70	1		
NURE Seds[e]	DSOM093S1			930	1											70	1		
NURE Seds[e]	DSOM094S1			670	1											80	1		
NURE Seds[e]	DSOM095S1			430	1											50	1		
NURE Seds[e]	DSOM096S1			740	1											90	1		
NURE Seds[e]	DSOM097S1			830	1											60	1		
NURE Seds[e]	DSOM098S1			970	1											60	1		
NURE Seds[e]	DSOM100S1			2600	1											10	0		
NURE Seds[e]	DSOM101S1			280	1											50	1		
NURE Seds[e]	DSOM102S1			700	1											30	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM103S1	63500	1																	24500	1
NURE Seds[e]	DSOM104S1	61700	1																	32300	1
NURE Seds[e]	DSOM105S1	62700	1																	23200	1
NURE Seds[e]	DSOM107S1	59000	1																	36900	1
NURE Seds[e]	DSOM108S1	60200	1																	24400	1
NURE Seds[e]	DSOM109S1	71800	1																	31400	1
NURE Seds[e]	DSOM110S1	68100	1																	25100	1
NURE Seds[e]	DSOM111S1	61600	1																	24300	1
NURE Seds[e]	DSOM112S1	65900	1																	22100	1
NURE Seds[e]	DSOM114S1	59700	1																	19400	1
NURE Seds[e]	DSOM115S1	73500	1																	20400	1
NURE Seds[e]	DSOM118S1	66800	1																	21800	1
NURE Seds[e]	DSOM119S1	72600	1																	30900	1
NURE Seds[e]	DSOM121S1	63900	1																	20800	1
NURE Seds[e]	DSOM123S1	73400	1																	29900	1
NURE Seds[e]	DSOM129S1	60100	1																	16900	1
NURE Seds[e]	DSOM130S1	66600	1																	25000	1
NURE Seds[e]	DSOM131S1	63700	1																	21900	1
NURE Seds[e]	DSOM133S1	72300	1																	30700	1
NURE Seds[e]	DSOM134S1	73500	1																	20800	1
NURE Seds[e]	DSOM135S1	70300	1																	28800	1
NURE Seds[e]	DSOM137S1	69300	1																	19400	1
NURE Seds[e]	DSOM138S1	77900	1																	24200	1
NURE Seds[e]	DSOM140S1	66400	1																	22500	1
NURE Seds[e]	DSOM141S1	69100	1																	25300	1
NURE Seds[e]	DSOM143S1	69100	1																	25700	1
NURE Seds[e]	DSOM145S1	66500	1																	31300	1
NURE Seds[e]	DSOM147S1	62900	1																	19800	1
NURE Seds[e]	DSOM148S1	81300	1																	21800	1
NURE Seds[e]	DSOM150S1	72100	1																	24800	1
NURE Seds[e]	DSOM151S1	70900	1																	33600	1
NURE Seds[e]	DSOM152S1	75200	1																	24900	1
NURE Seds[e]	DSOM154S1	64800	1																	37100	1
NURE Seds[e]	DSOM155S1	64500	1																		
NURE Seds[e]	DSOM159S1	62600	1																	28500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM103S1			1020	1											50	1		
NURE Seds[e]	DSOM104S1			570	1											70	1		
NURE Seds[e]	DSOM105S1			510	1											60	1		
NURE Seds[e]	DSOM107S1			900	1											80	1		
NURE Seds[e]	DSOM108S1			730	1											70	1		
NURE Seds[e]	DSOM109S1			920	1											60	1		
NURE Seds[e]	DSOM110S1			1070	1											60	1		
NURE Seds[e]	DSOM111S1			970	1											50	1		
NURE Seds[e]	DSOM112S1			1230	1											80	1		
NURE Seds[e]	DSOM114S1			450	1											40	1		
NURE Seds[e]	DSOM115S1			460	1											40	1		
NURE Seds[e]	DSOM118S1			390	1											70	1		
NURE Seds[e]	DSOM119S1			620	1											80	1		
NURE Seds[e]	DSOM121S1			740	1											70	1		
NURE Seds[e]	DSOM123S1			850	1											80	1		
NURE Seds[e]	DSOM129S1			530	1											40	1		
NURE Seds[e]	DSOM130S1			370	1											50	1		
NURE Seds[e]	DSOM131S1			800	1											60	1		
NURE Seds[e]	DSOM133S1			630	1											60	1		
NURE Seds[e]	DSOM134S1			650	1											80	1		
NURE Seds[e]	DSOM135S1			570	1											70	1		
NURE Seds[e]	DSOM137S1			490	1											50	1		
NURE Seds[e]	DSOM138S1			390	1											50	1		
NURE Seds[e]	DSOM140S1			1220	1											60	1		
NURE Seds[e]	DSOM141S1			790	1											50	1		
NURE Seds[e]	DSOM143S1			850	1											60	1		
NURE Seds[e]	DSOM145S1			1000	1											60	1		
NURE Seds[e]	DSOM147S1			680	1											70	1		
NURE Seds[e]	DSOM148S1			560	1											50	1		
NURE Seds[e]	DSOM150S1			640	1											60	1		
NURE Seds[e]	DSOM151S1			1500	1											70	1		
NURE Seds[e]	DSOM152S1			910	1											50	1		
NURE Seds[e]	DSOM154S1			550	1											70	1		
NURE Seds[e]	DSOM155S1			650	1											60	1		
NURE Seds[e]	DSOM159S1			980	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM161S1	60400	1																	27400	1
NURE Seds[e]	DSOM162S1	60500	1																	24400	1
NURE Seds[e]	DSOM164S1	58100	1																	18900	1
NURE Seds[e]	DSOM165S1	63200	1																	34100	1
NURE Seds[e]	DSOM166S1	51400	1																	109700	1
NURE Seds[e]	DSOM168S1	63100	1																	27700	1
NURE Seds[e]	DSOM169S1	64200	1																		
NURE Seds[e]	DSOM170S1	58600	1																		
NURE Seds[e]	DSOM171S1	61200	1																		
NURE Seds[e]	DSOM172S1	56400	1																		
NURE Seds[e]	DSOM173S1	500	0																		
NURE Seds[e]	DSOM174S1	60200	1																	27400	1
NURE Seds[e]	DSOM175S1	59700	1																	32000	1
NURE Seds[e]	DSOM176S1	70200	1																	28400	1
NURE Seds[e]	DSOM177S1	71300	1																	20200	1
NURE Seds[e]	DSOM178S1	90000	1																	39700	1
NURE Seds[e]	DSOM179S1	63000	1																	32100	1
NURE Seds[e]	DSOM180S1	55900	1																	32100	1
NURE Seds[e]	DSOM181S1	68300	1																	36000	1
NURE Seds[e]	DSOM182S1	61700	1																	26300	1
NURE Seds[e]	DSOM183S1	70200	1																	32200	1
NURE Seds[e]	DSOM184S1	66900	1																	23900	1
NURE Seds[e]	DSOM186S1	65900	1																	23300	1
NURE Seds[e]	DSOM187S1	64000	1																	26500	1
NURE Seds[e]	DSOM188S1	64400	1																	26100	1
NURE Seds[e]	DSOM189S1	76500	1																	43200	1
NURE Seds[e]	DSOM190S1	77000	1																	29400	1
NURE Seds[e]	DSOM191S1	57900	1																	23500	1
NURE Seds[e]	DSOM192S1	63500	1																	30000	1
NURE Seds[e]	DSOM193S1	65900	1																	23500	1
NURE Seds[e]	DSOM194S1	69500	1																	24700	1
NURE Seds[e]	DSOM195S1	70100	1																	27700	1
NURE Seds[e]	DSOM196S1	58700	1																	30100	1
NURE Seds[e]	DSOM198S1	53300	1																	28500	1
NURE Seds[e]	DSOM199S1	57900	1																	36000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM161S1			1000	1											50	1		
NURE Seds[e]	DSOM162S1			990	1											70	1		
NURE Seds[e]	DSOM164S1			520	1											50	1		
NURE Seds[e]	DSOM165S1			1080	1											90	1		
NURE Seds[e]	DSOM166S1			590	1											170	1		
NURE Seds[e]	DSOM168S1			730	1											80	1		
NURE Seds[e]	DSOM169S1			930	1											60	1		
NURE Seds[e]	DSOM170S1			840	1											100	1		
NURE Seds[e]	DSOM171S1			500	1											60	1		
NURE Seds[e]	DSOM172S1			1260	1											60	1		
NURE Seds[e]	DSOM173S1			20	0														
NURE Seds[e]	DSOM174S1			1800	1											60	1		
NURE Seds[e]	DSOM175S1			790	1											90	1		
NURE Seds[e]	DSOM176S1			530	1											50	1		
NURE Seds[e]	DSOM177S1			420	1											50	1		
NURE Seds[e]	DSOM178S1			720	1											90	1		
NURE Seds[e]	DSOM179S1			570	1											90	1		
NURE Seds[e]	DSOM180S1			1150	1											90	1		
NURE Seds[e]	DSOM181S1			1690	1											90	1		
NURE Seds[e]	DSOM182S1			780	1											50	1		
NURE Seds[e]	DSOM183S1			650	1											80	1		
NURE Seds[e]	DSOM184S1			800	1											50	1		
NURE Seds[e]	DSOM186S1			1220	1											60	1		
NURE Seds[e]	DSOM187S1			1310	1											40	1		
NURE Seds[e]	DSOM188S1			2300	1											50	1		
NURE Seds[e]	DSOM189S1			750	1											110	1		
NURE Seds[e]	DSOM190S1			1100	1											70	1		
NURE Seds[e]	DSOM191S1			1090	1											60	1		
NURE Seds[e]	DSOM192S1			1370	1											70	1		
NURE Seds[e]	DSOM193S1			650	1											60	1		
NURE Seds[e]	DSOM194S1			540	1											50	1		
NURE Seds[e]	DSOM195S1			570	1											50	1		
NURE Seds[e]	DSOM196S1			700	1											60	1		
NURE Seds[e]	DSOM198S1			540	1											70	1		
NURE Seds[e]	DSOM199S1			770	1											110	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM201S1	70600	1																	34800	1
NURE Seds[e]	DSOM202S1	67100	1																	32300	1
NURE Seds[e]	DSOM204S1	69300	1																		
NURE Seds[e]	DSOM205S1	76100	1																	23300	1
NURE Seds[e]	DSOM206S1	85600	1																	26700	1
NURE Seds[e]	DSOM207S1	75400	1																	16800	1
NURE Seds[e]	DSOM208S1	64700	1																	20200	1
NURE Seds[e]	DSOM209S1	66400	1																	26500	1
NURE Seds[e]	DSOM210S1	74300	1																	31800	1
NURE Seds[e]	DSOM211S1	74100	1																	43100	1
NURE Seds[e]	DSOM212S1	70800	1																	36300	1
NURE Seds[e]	DSOM213S1	66200	1																	32600	1
NURE Seds[e]	DSOM214S1	68200	1																	19200	1
NURE Seds[e]	DSOM215S1	69100	1																	29800	1
NURE Seds[e]	DSOM216S1	65500	1																	15000	1
NURE Seds[e]	DSOM218S1	62700	1																	23500	1
NURE Seds[e]	DSOM219S1	67400	1																	18600	1
NURE Seds[e]	DSOM220S1	62200	1																	25900	1
NURE Seds[e]	DSOM221S1	59600	1																	20900	1
NURE Seds[e]	DSOM222S1	67700	1																	24900	1
NURE Seds[e]	DSOM223S1	84500	1																	34500	1
NURE Seds[e]	DSOM226S1	60900	1																	25900	1
NURE Seds[e]	DSOM227S1	63200	1																	27600	1
NURE Seds[e]	DSOM228S1	61200	1																	23800	1
NURE Seds[e]	DSOM229S1	55000	1																	20900	1
NURE Seds[e]	DSOM231S1	62100	1																	35800	1
NURE Seds[e]	DSOM233S1	55900	1																	27200	1
NURE Seds[e]	DSOM234S1	58800	1																	24300	1
NURE Seds[e]	DSOM236S1	59200	1																	27700	1
NURE Seds[e]	DSOM237S1	57500	1																	20100	1
NURE Seds[e]	DSOM238S1	57700	1																	23800	1
NURE Seds[e]	DSOM239S1	54200	1																	20000	1
NURE Seds[e]	DSOM240S1	60700	1																	32100	1
NURE Seds[e]	DSOM241S1	59100	1																	21800	1
NURE Seds[e]	DSOM242S1	63200	1																	38000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM201S1			460	1											90	1		
NURE Seds[e]	DSOM202S1			900	1											90	1		
NURE Seds[e]	DSOM204S1			1090	1											80	1		
NURE Seds[e]	DSOM205S1			590	1											30	1		
NURE Seds[e]	DSOM206S1			610	1											40	1		
NURE Seds[e]	DSOM207S1			210	1											30	1		
NURE Seds[e]	DSOM208S1			870	1											60	1		
NURE Seds[e]	DSOM209S1			880	1											60	1		
NURE Seds[e]	DSOM210S1			1210	1											70	1		
NURE Seds[e]	DSOM211S1			920	1											130	1		
NURE Seds[e]	DSOM212S1			780	1											80	1		
NURE Seds[e]	DSOM213S1			1080	1											80	1		
NURE Seds[e]	DSOM214S1			440	1											60	1		
NURE Seds[e]	DSOM215S1			540	1											70	1		
NURE Seds[e]	DSOM216S1			430	1											20	1		
NURE Seds[e]	DSOM218S1			460	1											50	1		
NURE Seds[e]	DSOM219S1			390	1											60	1		
NURE Seds[e]	DSOM220S1			460	1											60	1		
NURE Seds[e]	DSOM221S1			500	1											40	1		
NURE Seds[e]	DSOM222S1			700	1											80	1		
NURE Seds[e]	DSOM223S1			460	1											100	1		
NURE Seds[e]	DSOM226S1			510	1											50	1		
NURE Seds[e]	DSOM227S1			380	1											70	1		
NURE Seds[e]	DSOM228S1			410	1											70	1		
NURE Seds[e]	DSOM229S1			600	1											40	1		
NURE Seds[e]	DSOM231S1			580	1											80	1		
NURE Seds[e]	DSOM233S1			570	1											60	1		
NURE Seds[e]	DSOM234S1			840	1											40	1		
NURE Seds[e]	DSOM236S1			570	1											50	1		
NURE Seds[e]	DSOM237S1			680	1											60	1		
NURE Seds[e]	DSOM238S1			700	1											40	1		
NURE Seds[e]	DSOM239S1			750	1											40	1		
NURE Seds[e]	DSOM240S1			500	1											80	1		
NURE Seds[e]	DSOM241S1			650	1											50	1		
NURE Seds[e]	DSOM242S1			530	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM243S1	66200	1																	28900	1
NURE Seds[e]	DSOM244S1	60300	1																	27500	1
NURE Seds[e]	DSOM245S1	61900	1																	35100	1
NURE Seds[e]	DSOM246S1	60100	1																	28000	1
NURE Seds[e]	DSOM247S1	66200	1																	29000	1
NURE Seds[e]	DSOM248S1	57600	1																	29800	1
NURE Seds[e]	DSOM249S1	59300	1																	30000	1
NURE Seds[e]	DSOM250S1	58600	1																	24900	1
NURE Seds[e]	DSOM251S1	66000	1																	26000	1
NURE Seds[e]	DSOM252S1	67500	1																	21900	1
NURE Seds[e]	DSOM253S1	68000	1																	38400	1
NURE Seds[e]	DSOM254S1	68200	1																	28600	1
NURE Seds[e]	DSOM256S1	78300	1																	26800	1
NURE Seds[e]	DSOM257S1	54500	1																	27300	1
NURE Seds[e]	DSOM258S1	62100	1																	16200	1
NURE Seds[e]	DSOM259S1	66800	1																	26800	1
NURE Seds[e]	DSOM260S1	72600	1																	28800	1
NURE Seds[e]	DSOM261S1	63500	1																	30500	1
NURE Seds[e]	DSOM262S1	62000	1																	55000	1
NURE Seds[e]	DSOM263S1	62100	1																	25700	1
NURE Seds[e]	DSOM264S1	55700	1																	28300	1
NURE Seds[e]	DSOM265S1	65700	1																	41200	1
NURE Seds[e]	DSOM266S1	52600	1																	32000	1
NURE Seds[e]	DSOM267S1	63100	1																	29300	1
NURE Seds[e]	DSOM268S1	63700	1																	30100	1
NURE Seds[e]	DSOM269S1	60400	1																	34200	1
NURE Seds[e]	DSOM271S1	63600	1																	27600	1
NURE Seds[e]	DSOM274S1	60100	1																	52000	1
NURE Seds[e]	DSOM275S1	67500	1																	36600	1
NURE Seds[e]	DSOM277S1	52000	1																	35500	1
NURE Seds[e]	DSOM278S1	59700	1																	31400	1
NURE Seds[e]	DSOM279S1	64300	1																	28800	1
NURE Seds[e]	DSOM280S1	62000	1																	30600	1
NURE Seds[e]	DSOM281S1	58800	1																	22300	1
NURE Seds[e]	DSOM282S1	56500	1																	34300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM243S1			1040	1											80	1		
NURE Seds[e]	DSOM244S1			1540	1											60	1		
NURE Seds[e]	DSOM245S1			680	1											70	1		
NURE Seds[e]	DSOM246S1			640	1											50	1		
NURE Seds[e]	DSOM247S1			690	1											70	1		
NURE Seds[e]	DSOM248S1			920	1											90	1		
NURE Seds[e]	DSOM249S1			680	1											80	1		
NURE Seds[e]	DSOM250S1			1220	1											60	1		
NURE Seds[e]	DSOM251S1			880	1											50	1		
NURE Seds[e]	DSOM252S1			470	1											70	1		
NURE Seds[e]	DSOM253S1			750	1											70	1		
NURE Seds[e]	DSOM254S1			610	1											90	1		
NURE Seds[e]	DSOM256S1			520	1											50	1		
NURE Seds[e]	DSOM257S1			490	1											50	1		
NURE Seds[e]	DSOM258S1			690	1											60	1		
NURE Seds[e]	DSOM259S1			650	1											80	1		
NURE Seds[e]	DSOM260S1			810	1											70	1		
NURE Seds[e]	DSOM261S1			500	1											90	1		
NURE Seds[e]	DSOM262S1			760	1											110	1		
NURE Seds[e]	DSOM263S1			1950	1											50	1		
NURE Seds[e]	DSOM264S1			540	1											60	1		
NURE Seds[e]	DSOM265S1			1100	1											100	1		
NURE Seds[e]	DSOM266S1			810	1											90	1		
NURE Seds[e]	DSOM267S1			770	1											70	1		
NURE Seds[e]	DSOM268S1			870	1											90	1		
NURE Seds[e]	DSOM269S1			860	1											120	1		
NURE Seds[e]	DSOM271S1			470	1											60	1		
NURE Seds[e]	DSOM274S1			1020	1											160	1		
NURE Seds[e]	DSOM275S1			660	1											80	1		
NURE Seds[e]	DSOM277S1			590	1											70	1		
NURE Seds[e]	DSOM278S1			1480	1											70	1		
NURE Seds[e]	DSOM279S1			730	1											50	1		
NURE Seds[e]	DSOM280S1			1930	1											10	0		
NURE Seds[e]	DSOM281S1			670	1											50	1		
NURE Seds[e]	DSOM282S1			1220	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM283S1	63700	1																	44700	1
NURE Seds[e]	DSOM284S1	71800	1																	31800	1
NURE Seds[e]	DSOM285S1	64800	1																	38400	1
NURE Seds[e]	DSOM286S1	64800	1																	41300	1
NURE Seds[e]	DSOM287S1	64200	1																	35600	1
NURE Seds[e]	DSOM288S1	65100	1																	35300	1
NURE Seds[e]	DSOM289S1	39900	1																	19600	1
NURE Seds[e]	DSOM290S1	60600	1																	33400	1
NURE Seds[e]	DSOM291S1	62000	1																	29400	1
NURE Seds[e]	DSOM293S1	57900	1																	26000	1
NURE Seds[e]	DSOM295S1	57000	1																	42300	1
NURE Seds[e]	DSOM296S1	63000	1																	32400	1
NURE Seds[e]	DSOM297S1	67700	1																	36700	1
NURE Seds[e]	DSOM298S1	64700	1																	34600	1
NURE Seds[e]	DSOM300S1	66500	1																	38400	1
NURE Seds[e]	DSOM301S1	57000	1																	23500	1
NURE Seds[e]	DSOM304S1	64000	1																	44100	1
NURE Seds[e]	DSOM305S1	49400	1																	22000	1
NURE Seds[e]	DSOM307S1	58700	1																	26900	1
NURE Seds[e]	DSOM309S1	53400	1																	36300	1
NURE Seds[e]	DSOM310S1	73100	1																	37300	1
NURE Seds[e]	DSOM311S1	59800	1																	24100	1
NURE Seds[e]	DSOM312S1	58100	1																	38800	1
NURE Seds[e]	DSOM313S1	61300	1																	31200	1
NURE Seds[e]	DSOM315S1	54900	1																	32900	1
NURE Seds[e]	DSOM317S1	64800	1																	35000	1
NURE Seds[e]	DSOM318S1	66700	1																	26400	1
NURE Seds[e]	DSOM319S1	59800	1																	26200	1
NURE Seds[e]	DSOM320S1	62400	1																	27700	1
NURE Seds[e]	DSOM322S1	59500	1																	33300	1
NURE Seds[e]	DSOM324S1	62400	1																	24800	1
NURE Seds[e]	DSOM326S1	57100	1																	15100	1
NURE Seds[e]	DSOM327S1	63900	1																	23900	1
NURE Seds[e]	DSOM328S1	60200	1																	29900	1
NURE Seds[e]	DSOM329S1	55500	1																	27500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM283S1			730	1											100	1		
NURE Seds[e]	DSOM284S1			690	1											110	1		
NURE Seds[e]	DSOM285S1			710	1											80	1		
NURE Seds[e]	DSOM286S1			940	1											110	1		
NURE Seds[e]	DSOM287S1			720	1											80	1		
NURE Seds[e]	DSOM288S1			1120	1											90	1		
NURE Seds[e]	DSOM289S1			530	1											50	1		
NURE Seds[e]	DSOM290S1			890	1											110	1		
NURE Seds[e]	DSOM291S1			860	1											60	1		
NURE Seds[e]	DSOM293S1			900	1											80	1		
NURE Seds[e]	DSOM295S1			900	1											150	1		
NURE Seds[e]	DSOM296S1			1130	1											100	1		
NURE Seds[e]	DSOM297S1			670	1											100	1		
NURE Seds[e]	DSOM298S1			870	1											130	1		
NURE Seds[e]	DSOM300S1			870	1											90	1		
NURE Seds[e]	DSOM301S1			800	1											60	1		
NURE Seds[e]	DSOM304S1			620	1											120	1		
NURE Seds[e]	DSOM305S1			1180	1											70	1		
NURE Seds[e]	DSOM307S1			550	1											80	1		
NURE Seds[e]	DSOM309S1			570	1											90	1		
NURE Seds[e]	DSOM310S1			1140	1											90	1		
NURE Seds[e]	DSOM311S1			800	1											50	1		
NURE Seds[e]	DSOM312S1			1660	1											110	1		
NURE Seds[e]	DSOM313S1			780	1											70	1		
NURE Seds[e]	DSOM315S1			1110	1											70	1		
NURE Seds[e]	DSOM317S1			1110	1											60	1		
NURE Seds[e]	DSOM318S1			490	1											70	1		
NURE Seds[e]	DSOM319S1			870	1											60	1		
NURE Seds[e]	DSOM320S1			490	1											80	1		
NURE Seds[e]	DSOM322S1			550	1											80	1		
NURE Seds[e]	DSOM324S1			450	1											60	1		
NURE Seds[e]	DSOM326S1			640	1											30	1		
NURE Seds[e]	DSOM327S1			720	1											60	1		
NURE Seds[e]	DSOM328S1			770	1											60	1		
NURE Seds[e]	DSOM329S1			1030	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM330S1	67300	1																	31400	1
NURE Seds[e]	DSOM331S1	54200	1																	19200	1
NURE Seds[e]	DSOM332S1	60100	1																	39600	1
NURE Seds[e]	DSOM333S1	66800	1																	33900	1
NURE Seds[e]	DSOM334S1	61300	1																	49200	1
NURE Seds[e]	DSOM335S1	62700	1																		
NURE Seds[e]	DSOM336S1	54000	1																	32400	1
NURE Seds[e]	DSOM337S1	58500	1																	26200	1
NURE Seds[e]	DSOM338S1	67400	1																	21300	1
NURE Seds[e]	DSOM340S1	61800	1																	28900	1
NURE Seds[e]	DSOM342S1	58300	1																	22000	1
NURE Seds[e]	DSOM344S1	60700	1																	23200	1
NURE Seds[e]	DSOM345S1	65600	1																	30200	1
NURE Seds[e]	DSOM346S1	62300	1																	38700	1
NURE Seds[e]	DSOM347S1	59300	1																	31300	1
NURE Seds[e]	DSOM348S1	61000	1																	25900	1
NURE Seds[e]	DSOM350S1	60400	1																	22900	1
NURE Seds[e]	DSOM351S1	65400	1																	23800	1
NURE Seds[e]	DSOM353S1	60100	1																	31700	1
NURE Seds[e]	DSOM354S1	60800	1																	34900	1
NURE Seds[e]	DSOM355S1	55700	1																	25900	1
NURE Seds[e]	DSOM356S1	58500	1																	34200	1
NURE Seds[e]	DSOM358S1	45000	1																	22400	1
NURE Seds[e]	DSOM359S1	54000	1																	45700	1
NURE Seds[e]	DSOM360S1	56300	1																	45900	1
NURE Seds[e]	DSOM362S1	41100	1																	34100	1
NURE Seds[e]	DSOM363S1	66600	1																	23500	1
NURE Seds[e]	DSOM365S1	61000	1																	18800	1
NURE Seds[e]	DSOM368S1	56200	1																	27500	1
NURE Seds[e]	DSOM369S1	62500	1																	25200	1
NURE Seds[e]	DSOM370S1	62900	1																	53700	1
NURE Seds[e]	DSOM371S1	60800	1																	42300	1
NURE Seds[e]	DSOM374S1	63400	1																	40600	1
NURE Seds[e]	DSOM375S1	54100	1																	69700	1
NURE Seds[e]	DSOM377S1	66200	1																	23300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM330S1			1090	1											50	1		
NURE Seds[e]	DSOM331S1			630	1											50	1		
NURE Seds[e]	DSOM332S1			820	1											140	1		
NURE Seds[e]	DSOM333S1			760	1											90	1		
NURE Seds[e]	DSOM334S1			700	1											100	1		
NURE Seds[e]	DSOM335S1			680	1											110	1		
NURE Seds[e]	DSOM336S1			690	1											80	1		
NURE Seds[e]	DSOM337S1			660	1											80	1		
NURE Seds[e]	DSOM338S1			590	1											60	1		
NURE Seds[e]	DSOM340S1			630	1											50	1		
NURE Seds[e]	DSOM342S1			710	1											40	1		
NURE Seds[e]	DSOM344S1			660	1											70	1		
NURE Seds[e]	DSOM345S1			470	1											70	1		
NURE Seds[e]	DSOM346S1			540	1											80	1		
NURE Seds[e]	DSOM347S1			1180	1											80	1		
NURE Seds[e]	DSOM348S1			20	0											40	1		
NURE Seds[e]	DSOM350S1			500	1											70	1		
NURE Seds[e]	DSOM351S1			360	1											60	1		
NURE Seds[e]	DSOM353S1			490	1											80	1		
NURE Seds[e]	DSOM354S1			410	1											90	1		
NURE Seds[e]	DSOM355S1			490	1											50	1		
NURE Seds[e]	DSOM356S1			780	1											120	1		
NURE Seds[e]	DSOM358S1			520	1											60	1		
NURE Seds[e]	DSOM359S1			850	1											110	1		
NURE Seds[e]	DSOM360S1			720	1											110	1		
NURE Seds[e]	DSOM362S1			700	1											110	1		
NURE Seds[e]	DSOM363S1			400	1											80	1		
NURE Seds[e]	DSOM365S1			330	1											40	1		
NURE Seds[e]	DSOM368S1			530	1											50	1		
NURE Seds[e]	DSOM369S1			550	1											100	1		
NURE Seds[e]	DSOM370S1			880	1											140	1		
NURE Seds[e]	DSOM371S1			730	1											130	1		
NURE Seds[e]	DSOM374S1			650	1											100	1		
NURE Seds[e]	DSOM375S1			1020	1											170	1		
NURE Seds[e]	DSOM377S1			340	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM378S1	52800	1																	27800	1
NURE Seds[e]	DSOM379S1	63500	1																	27200	1
NURE Seds[e]	DSOM380S1	54900	1																	31200	1
NURE Seds[e]	DSOM381S1	68100	1																	39500	1
NURE Seds[e]	DSOM382S1	54800	1																	31000	1
NURE Seds[e]	DSOM384S1	65700	1																	25600	1
NURE Seds[e]	DSOM385S1	62700	1																	28800	1
NURE Seds[e]	DSOM387S1	73100	1																	34000	1
NURE Seds[e]	DSOM388S1	59200	1																	25300	1
NURE Seds[e]	DSOM389S1	53400	1																	36800	1
NURE Seds[e]	DSOM390S1	62400	1																	42100	1
NURE Seds[e]	DSOM391S1	54100	1																	47600	1
NURE Seds[e]	DSOM392S1	57400	1																	31100	1
NURE Seds[e]	DSOM393S1	58300	1																	23700	1
NURE Seds[e]	DSOM394S1	55400	1																	22400	1
NURE Seds[e]	DSOM396S1	51700	1																	27300	1
NURE Seds[e]	DSOM397S1	22500	1																	13200	1
NURE Seds[e]	DSOM398S1	43700	1																	40700	1
NURE Seds[e]	DSOM399S1	46700	1																	28600	1
NURE Seds[e]	DSOM400S1	54000	1																	22900	1
NURE Seds[e]	DSOM401S1	53200	1																	29200	1
NURE Seds[e]	DSOM402S1	42800	1																	21600	1
NURE Seds[e]	DSOM403S1	53300	1																	21700	1
NURE Seds[e]	DSOM404S1	50000	1																	54000	1
NURE Seds[e]	DSOM405S1	46600	1																	33600	1
NURE Seds[e]	DSOM406S1	44500	1																	28700	1
NURE Seds[e]	DSOM408S1	43200	1																	35100	1
NURE Seds[e]	DSOM409S1	64000	1																	37500	1
NURE Seds[e]	DSOM410S1	61200	1																	28100	1
NURE Seds[e]	DSOM411S1	61400	1																	43200	1
NURE Seds[e]	DSOM412S1	51100	1																	24800	1
NURE Seds[e]	DSOM413S1	59500	1																	23800	1
NURE Seds[e]	DSOM414S1	58800	1																	25500	1
NURE Seds[e]	DSOM415S1	45000	1																	22000	1
NURE Seds[e]	DSOM416S1	42000	1																	23800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM378S1			590	1											90	1		
NURE Seds[e]	DSOM379S1			410	1											60	1		
NURE Seds[e]	DSOM380S1			650	1											100	1		
NURE Seds[e]	DSOM381S1			810	1											110	1		
NURE Seds[e]	DSOM382S1			480	1											90	1		
NURE Seds[e]	DSOM384S1			610	1											100	1		
NURE Seds[e]	DSOM385S1			420	1											60	1		
NURE Seds[e]	DSOM387S1			260	1											70	1		
NURE Seds[e]	DSOM388S1			650	1											60	1		
NURE Seds[e]	DSOM389S1			700	1											100	1		
NURE Seds[e]	DSOM390S1			650	1											120	1		
NURE Seds[e]	DSOM391S1			860	1											130	1		
NURE Seds[e]	DSOM392S1			600	1											90	1		
NURE Seds[e]	DSOM393S1			490	1											70	1		
NURE Seds[e]	DSOM394S1			500	1											80	1		
NURE Seds[e]	DSOM396S1			460	1											60	1		
NURE Seds[e]	DSOM397S1			250	1											50	1		
NURE Seds[e]	DSOM398S1			630	1											150	1		
NURE Seds[e]	DSOM399S1			590	1											80	1		
NURE Seds[e]	DSOM400S1			1010	1											60	1		
NURE Seds[e]	DSOM401S1			500	1											110	1		
NURE Seds[e]	DSOM402S1			380	1											60	1		
NURE Seds[e]	DSOM403S1			430	1											60	1		
NURE Seds[e]	DSOM404S1			1020	1											210	1		
NURE Seds[e]	DSOM405S1			620	1											180	1		
NURE Seds[e]	DSOM406S1			620	1											100	1		
NURE Seds[e]	DSOM408S1			1070	1											70	1		
NURE Seds[e]	DSOM409S1			750	1											120	1		
NURE Seds[e]	DSOM410S1			730	1											100	1		
NURE Seds[e]	DSOM411S1			820	1											120	1		
NURE Seds[e]	DSOM412S1			640	1											80	1		
NURE Seds[e]	DSOM413S1			450	1											50	1		
NURE Seds[e]	DSOM414S1			460	1											60	1		
NURE Seds[e]	DSOM415S1			460	1											70	1		
NURE Seds[e]	DSOM416S1			370	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM418S1	47500	1																	23900	1
NURE Seds[e]	DSOM420S1	52900	1																	30600	1
NURE Seds[e]	DSOM421S1	45200	1																	27800	1
NURE Seds[e]	DSOM422S1	46500	1																	30500	1
NURE Seds[e]	DSOM424S1	59400	1																	23800	1
NURE Seds[e]	DSOM425S1	60300	1																	24400	1
NURE Seds[e]	DSOM426S1	56400	1																	33300	1
NURE Seds[e]	DSOM427S1	60700	1																	25900	1
NURE Seds[e]	DSOM431S1	58400	1																	25200	1
NURE Seds[e]	DSOM432S1	40300	1																	11100	1
NURE Seds[e]	DSOM433S1	57100	1																	28200	1
NURE Seds[e]	DSOM434S1	61800	1																	33300	1
NURE Seds[e]	DSOM436S1	62200	1																	38600	1
NURE Seds[e]	DSOM437S1	52800	1																	37000	1
NURE Seds[e]	DSOM439S1	60900	1																	30500	1
NURE Seds[e]	DSOM440S1	66300	1																	34300	1
NURE Seds[e]	DSOM442S1	64200	1																	33700	1
NURE Seds[e]	DSOM443S1	50900	1																	42100	1
NURE Seds[e]	DSOM445S1	50900	1																	39700	1
NURE Seds[e]	DSOM446S1	69700	1																	28700	1
NURE Seds[e]	DSOM447S1	63300	1																	21900	1
NURE Seds[e]	DSOM448S1	67400	1																	38000	1
NURE Seds[e]	DSOM449S1	53000	1																	22000	1
NURE Seds[e]	DSOM450S1	57100	1																	33600	1
NURE Seds[e]	DSOM451S1	56000	1																	25300	1
NURE Seds[e]	DSOM452S1	63400	1																	25100	1
NURE Seds[e]	DSOM453S1	61200	1																	28300	1
NURE Seds[e]	DSOM455S1	55100	1																	43600	1
NURE Seds[e]	DSOM457S1	65900	1																	25300	1
NURE Seds[e]	DSOM458S1	93500	1																	21600	1
NURE Seds[e]	DSOM460S1	64100	1																	28400	1
NURE Seds[e]	DSOM461S1	58300	1																	23000	1
NURE Seds[e]	DSOM462S1	54700	1																	23900	1
NURE Seds[e]	DSOM463S1	72900	1																	28300	1
NURE Seds[e]	DSOM464S1	62700	1																	42200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM418S1			520	1											50	1		
NURE Seds[e]	DSOM420S1			330	1											90	1		
NURE Seds[e]	DSOM421S1			610	1											60	1		
NURE Seds[e]	DSOM422S1			360	1											100	1		
NURE Seds[e]	DSOM424S1			1440	1											70	1		
NURE Seds[e]	DSOM425S1			380	1											50	1		
NURE Seds[e]	DSOM426S1			940	1											120	1		
NURE Seds[e]	DSOM427S1			780	1											50	1		
NURE Seds[e]	DSOM431S1			670	1											80	1		
NURE Seds[e]	DSOM432S1			150	1											30	1		
NURE Seds[e]	DSOM433S1			740	1											50	1		
NURE Seds[e]	DSOM434S1			610	1											50	1		
NURE Seds[e]	DSOM436S1			690	1											70	1		
NURE Seds[e]	DSOM437S1			750	1											90	1		
NURE Seds[e]	DSOM439S1			870	1											80	1		
NURE Seds[e]	DSOM440S1			620	1											70	1		
NURE Seds[e]	DSOM442S1			660	1											90	1		
NURE Seds[e]	DSOM443S1			890	1											150	1		
NURE Seds[e]	DSOM445S1			1000	1											120	1		
NURE Seds[e]	DSOM446S1			1090	1											70	1		
NURE Seds[e]	DSOM447S1			700	1											60	1		
NURE Seds[e]	DSOM448S1			820	1											80	1		
NURE Seds[e]	DSOM449S1			520	1											70	1		
NURE Seds[e]	DSOM450S1			520	1											70	1		
NURE Seds[e]	DSOM451S1			1280	1											70	1		
NURE Seds[e]	DSOM452S1			600	1											40	1		
NURE Seds[e]	DSOM453S1			730	1											80	1		
NURE Seds[e]	DSOM455S1			1090	1											120	1		
NURE Seds[e]	DSOM457S1			990	1											60	1		
NURE Seds[e]	DSOM458S1			530	1											60	1		
NURE Seds[e]	DSOM460S1			540	1											50	1		
NURE Seds[e]	DSOM461S1			650	1											80	1		
NURE Seds[e]	DSOM462S1			620	1											50	1		
NURE Seds[e]	DSOM463S1			1010	1											70	1		
NURE Seds[e]	DSOM464S1			500	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM465S1	59700	1																	41800	1
NURE Seds[e]	DSOM466S1	71700	1																	35600	1
NURE Seds[e]	DSOM467S1	69100	1																	49800	1
NURE Seds[e]	DSOM468S1	70500	1																	34400	1
NURE Seds[e]	DSOM469S1	61800	1																	35400	1
NURE Seds[e]	DSOM470S1	57600	1																	33200	1
NURE Seds[e]	DSOM472S1	57800	1																	31400	1
NURE Seds[e]	DSON001S1	61700	1																	22900	1
NURE Seds[e]	DSON002S1	63000	1																	28300	1
NURE Seds[e]	DSON004S1	63600	1																		
NURE Seds[e]	DSON005S1	66600	1																	31900	1
NURE Seds[e]	DSON006S1	61700	1																	15500	1
NURE Seds[e]	DSON007S1	51000	1																	48600	1
NURE Seds[e]	DSON008S1	67500	1																	25600	1
NURE Seds[e]	DSON011S1	63900	1																	22500	1
NURE Seds[e]	DSON012S1	63100	1																	30600	1
NURE Seds[e]	DSON013S1	68800	1																		
NURE Seds[e]	DSON014S1	71300	1																	18300	1
NURE Seds[e]	DSON015S1	60300	1																	24900	1
NURE Seds[e]	DSON017S1	66800	1																	24900	1
NURE Seds[e]	DSON018S1	65100	1																	33100	1
NURE Seds[e]	DSON019S1	68700	1																	28200	1
NURE Seds[e]	DSON020S1	69500	1																	17600	1
NURE Seds[e]	DSON021S1	69800	1																	26400	1
NURE Seds[e]	DSON024S1	64100	1																	32500	1
NURE Seds[e]	DSON025S1	65800	1																	25400	1
NURE Seds[e]	DSON027S1	62100	1																	18500	1
NURE Seds[e]	DSON028S1	56800	1																		
NURE Seds[e]	DSON031S1	63800	1																	35000	1
NURE Seds[e]	DSON032S1	71200	1																	13300	1
NURE Seds[e]	DSON035S1	67700	1																	23900	1
NURE Seds[e]	DSON036S1	62900	1																	23300	1
NURE Seds[e]	DSON037S1	52800	1																	22700	1
NURE Seds[e]	DSON038S1	46900	1																	15500	1
NURE Seds[e]	DSON039S1	60500	1																	22700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM465S1			650	1											90	1		
NURE Seds[e]	DSOM466S1			560	1											80	1		
NURE Seds[e]	DSOM467S1			640	1											100	1		
NURE Seds[e]	DSOM468S1			630	1											70	1		
NURE Seds[e]	DSOM469S1			960	1											70	1		
NURE Seds[e]	DSOM470S1			1390	1											70	1		
NURE Seds[e]	DSOM472S1			2410	1											80	1		
NURE Seds[e]	DSON001S1			970	1											60	1		
NURE Seds[e]	DSON002S1			780	1											60	1		
NURE Seds[e]	DSON004S1			380	1											30	1		
NURE Seds[e]	DSON005S1			770	1											100	1		
NURE Seds[e]	DSON006S1			530	1											20	1		
NURE Seds[e]	DSON007S1			950	1											150	1		
NURE Seds[e]	DSON008S1			830	1											60	1		
NURE Seds[e]	DSON011S1			640	1											50	1		
NURE Seds[e]	DSON012S1			1180	1											60	1		
NURE Seds[e]	DSON013S1			800	1											60	1		
NURE Seds[e]	DSON014S1			980	1											40	1		
NURE Seds[e]	DSON015S1			470	1											40	1		
NURE Seds[e]	DSON017S1			800	1											50	1		
NURE Seds[e]	DSON018S1			1180	1											100	1		
NURE Seds[e]	DSON019S1			920	1											60	1		
NURE Seds[e]	DSON020S1			390	1											30	1		
NURE Seds[e]	DSON021S1			470	1											40	1		
NURE Seds[e]	DSON024S1			1090	1											50	1		
NURE Seds[e]	DSON025S1			790	1											70	1		
NURE Seds[e]	DSON027S1			470	1											30	1		
NURE Seds[e]	DSON028S1			1340	1											30	1		
NURE Seds[e]	DSON031S1			900	1											80	1		
NURE Seds[e]	DSON032S1			360	1											30	1		
NURE Seds[e]	DSON035S1			660	1											50	1		
NURE Seds[e]	DSON036S1			480	1											40	1		
NURE Seds[e]	DSON037S1			1020	1											40	1		
NURE Seds[e]	DSON038S1			370	1											30	1		
NURE Seds[e]	DSON039S1			390	1											30	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON040S1	56900	1																	13900	1
NURE Seds[e]	DSON041S1	62200	1																	16600	1
NURE Seds[e]	DSON042S1	60000	1																	25900	1
NURE Seds[e]	DSON043S1	62800	1																	30400	1
NURE Seds[e]	DSON044S1	57600	1																	24100	1
NURE Seds[e]	DSON046S1	65300	1																	24000	1
NURE Seds[e]	DSON048S1	71200	1																	29700	1
NURE Seds[e]	DSON049S1	68500	1																	23800	1
NURE Seds[e]	DSON050S1	69500	1																	23200	1
NURE Seds[e]	DSON051S1	57000	1																	23100	1
NURE Seds[e]	DSON052S1	68900	1																	32900	1
NURE Seds[e]	DSON053S1	71500	1																	24600	1
NURE Seds[e]	DSON056S1	53100	1																	19800	1
NURE Seds[e]	DSON057S1	105500	1																	25500	1
NURE Seds[e]	DSON058S1	62100	1																	30500	1
NURE Seds[e]	DSON059S1	60100	1																	22400	1
NURE Seds[e]	DSON061S1	68200	1																	30200	1
NURE Seds[e]	DSON062S1	69100	1																	28600	1
NURE Seds[e]	DSON063S1	68800	1																	18900	1
NURE Seds[e]	DSON064S1	63900	1																	27100	1
NURE Seds[e]	DSON065S1	65000	1																	39700	1
NURE Seds[e]	DSON066S1	60000	1																	30300	1
NURE Seds[e]	DSON067S1	73000	1																	33900	1
NURE Seds[e]	DSON068S1	62500	1																	32700	1
NURE Seds[e]	DSON069S1	67300	1																	31600	1
NURE Seds[e]	DSON070S1	63300	1																	23100	1
NURE Seds[e]	DSON071S1	59600	1																	27300	1
NURE Seds[e]	DSON072S1	62900	1																	39400	1
NURE Seds[e]	DSON073S1	67800	1																	32500	1
NURE Seds[e]	DSON074S1	55300	1																	49900	1
NURE Seds[e]	DSON075S1	61200	1																	27800	1
NURE Seds[e]	DSON076S1	70100	1																	26400	1
NURE Seds[e]	DSON077S1	51900	1																	43900	1
NURE Seds[e]	DSON078S1	65600	1																	26500	1
NURE Seds[e]	DSON079S1	64000	1																	25900	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON040S1			270	1											30	1		
NURE Seds[e]	DSON041S1			370	1											40	1		
NURE Seds[e]	DSON042S1			1070	1											50	1		
NURE Seds[e]	DSON043S1			1110	1											40	1		
NURE Seds[e]	DSON044S1			1060	1											50	1		
NURE Seds[e]	DSON046S1			810	1											30	1		
NURE Seds[e]	DSON048S1			800	1											60	1		
NURE Seds[e]	DSON049S1			1020	1											30	1		
NURE Seds[e]	DSON050S1			780	1											40	1		
NURE Seds[e]	DSON051S1			900	1											50	1		
NURE Seds[e]	DSON052S1			640	1											60	1		
NURE Seds[e]	DSON053S1			890	1											40	1		
NURE Seds[e]	DSON056S1			450	1											50	1		
NURE Seds[e]	DSON057S1			560	1											70	1		
NURE Seds[e]	DSON058S1			1950	1											100	1		
NURE Seds[e]	DSON059S1			1360	1											50	1		
NURE Seds[e]	DSON061S1			660	1											60	1		
NURE Seds[e]	DSON062S1			980	1											70	1		
NURE Seds[e]	DSON063S1			470	1											30	1		
NURE Seds[e]	DSON064S1			790	1											40	1		
NURE Seds[e]	DSON065S1			1420	1											90	1		
NURE Seds[e]	DSON066S1			1310	1											90	1		
NURE Seds[e]	DSON067S1			1230	1											90	1		
NURE Seds[e]	DSON068S1			800	1											50	1		
NURE Seds[e]	DSON069S1			1480	1											40	1		
NURE Seds[e]	DSON070S1			840	1											60	1		
NURE Seds[e]	DSON071S1			660	1											50	1		
NURE Seds[e]	DSON072S1			760	1											100	1		
NURE Seds[e]	DSON073S1			480	1											70	1		
NURE Seds[e]	DSON074S1			1040	1											110	1		
NURE Seds[e]	DSON075S1			470	1											50	1		
NURE Seds[e]	DSON076S1			610	1											70	1		
NURE Seds[e]	DSON077S1			930	1											120	1		
NURE Seds[e]	DSON078S1			940	1											70	1		
NURE Seds[e]	DSON079S1			660	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON080S1	65100	1																	22900	1
NURE Seds[e]	DSON081S1	77700	1																	30000	1
NURE Seds[e]	DSON082S1	30500	1																	18900	1
NURE Seds[e]	DSON083S1	21500	1																	24200	1
NURE Seds[e]	DSON084S1	58000	1																	29800	1
NURE Seds[e]	DSON085S1	61200	1																	21900	1
NURE Seds[e]	DSON086S1	68700	1																	24600	1
NURE Seds[e]	DSON087S1	57200	1																	26100	1
NURE Seds[e]	DSON088S1	56000	1																	18900	1
NURE Seds[e]	DSON089S1	60500	1																	18700	1
NURE Seds[e]	DSON090S1	69700	1																	32300	1
NURE Seds[e]	DSON091S1	66700	1																	33800	1
NURE Seds[e]	DSON092S1	65700	1																	34800	1
NURE Seds[e]	DSON093S1	60700	1																	38800	1
NURE Seds[e]	DSON094S1	64900	1																	33800	1
NURE Seds[e]	DSON096S1	71900	1																	29900	1
NURE Seds[e]	DSON097S1	65000	1																	36400	1
NURE Seds[e]	DSON098S1	61500	1																	21300	1
NURE Seds[e]	DSON099S1	69400	1																	27300	1
NURE Seds[e]	DSON100S1	48900	1																	26000	1
NURE Seds[e]	DSON101S1	62900	1																	27200	1
NURE Seds[e]	DSON102S1	65700	1																	25000	1
NURE Seds[e]	DSON103S1	58500	1																	26000	1
NURE Seds[e]	DSON106S1	57900	1																	49300	1
NURE Seds[e]	DSON107S1	64600	1																	35300	1
NURE Seds[e]	DSON111S1	64300	1																	42500	1
NURE Seds[e]	DSON113S1	66700	1																	31000	1
NURE Seds[e]	DSON114S1	55500	1																	24800	1
NURE Seds[e]	DSON115S1	60900	1																	22100	1
NURE Seds[e]	DSON116S1	60500	1																	25500	1
NURE Seds[e]	DSON117S1	68000	1																	35500	1
NURE Seds[e]	DSON118S1	70900	1																	29800	1
NURE Seds[e]	DSON119S1	97500	1																	46200	1
NURE Seds[e]	DSON120S1	72200	1																	32900	1
NURE Seds[e]	DSON121S1	60800	1																	58600	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON080S1			740	1											70	1		
NURE Seds[e]	DSON081S1			500	1											80	1		
NURE Seds[e]	DSON082S1			440	1											30	1		
NURE Seds[e]	DSON083S1			1090	1											50	1		
NURE Seds[e]	DSON084S1			1400	1											50	1		
NURE Seds[e]	DSON085S1			900	1											60	1		
NURE Seds[e]	DSON086S1			450	1											40	1		
NURE Seds[e]	DSON087S1			650	1											40	1		
NURE Seds[e]	DSON088S1			630	1											30	1		
NURE Seds[e]	DSON089S1			320	1											40	1		
NURE Seds[e]	DSON090S1			680	1											60	1		
NURE Seds[e]	DSON091S1			1740	1											60	1		
NURE Seds[e]	DSON092S1			750	1											70	1		
NURE Seds[e]	DSON093S1			930	1											60	1		
NURE Seds[e]	DSON094S1			610	1											80	1		
NURE Seds[e]	DSON096S1			690	1											100	1		
NURE Seds[e]	DSON097S1			670	1											90	1		
NURE Seds[e]	DSON098S1			870	1											40	1		
NURE Seds[e]	DSON099S1			480	1											60	1		
NURE Seds[e]	DSON100S1			900	1											30	1		
NURE Seds[e]	DSON101S1			470	1											40	1		
NURE Seds[e]	DSON102S1			480	1											50	1		
NURE Seds[e]	DSON103S1			1500	1											90	1		
NURE Seds[e]	DSON106S1			900	1											140	1		
NURE Seds[e]	DSON107S1			940	1											130	1		
NURE Seds[e]	DSON111S1			810	1											150	1		
NURE Seds[e]	DSON113S1			820	1											110	1		
NURE Seds[e]	DSON114S1			500	1											50	1		
NURE Seds[e]	DSON115S1			490	1											50	1		
NURE Seds[e]	DSON116S1			320	1											30	1		
NURE Seds[e]	DSON117S1			790	1											70	1		
NURE Seds[e]	DSON118S1			1200	1											60	1		
NURE Seds[e]	DSON119S1			530	1											90	1		
NURE Seds[e]	DSON120S1			300	1											50	1		
NURE Seds[e]	DSON121S1			1240	1											170	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON122S1	63100	1																	25900	1
NURE Seds[e]	DSON123S1	61500	1																	25500	1
NURE Seds[e]	DSON124S1	71900	1																	33200	1
NURE Seds[e]	DSON125S1	75600	1																	55400	1
NURE Seds[e]	DSON126S1	72400	1																	16100	1
NURE Seds[e]	DSON127S1	70500	1																	24600	1
NURE Seds[e]	DSON128S1	57800	1																	49900	1
NURE Seds[e]	DSON129S1	70900	1																	41100	1
NURE Seds[e]	DSON130S1	62500	1																	35100	1
NURE Seds[e]	DSON131S1	62300	1																	51200	1
NURE Seds[e]	DSON132S1	60800	1																	36600	1
NURE Seds[e]	DSON133S1	54000	1																	57700	1
NURE Seds[e]	DSON134S1	74400	1																	47200	1
NURE Seds[e]	DSON136S1	68900	1																	34300	1
NURE Seds[e]	DSON137S1	69700	1																	28400	1
NURE Seds[e]	DSON138S1	70500	1																	36000	1
NURE Seds[e]	DSON139S1	64700	1																	24800	1
NURE Seds[e]	DSON140S1	64000	1																	29200	1
NURE Seds[e]	DSON141S1	59400	1																	36000	1
NURE Seds[e]	DSON142S1	61800	1																	42200	1
NURE Seds[e]	DSON143S1	58600	1																	32700	1
NURE Seds[e]	DSON144S1	71200	1																	34500	1
NURE Seds[e]	DSON145S1	67900	1																	47000	1
NURE Seds[e]	DSON146S1	66400	1																	38000	1
NURE Seds[e]	DSON147S1	63600	1																	47300	1
NURE Seds[e]	DSON148S1	55600	1																	48400	1
NURE Seds[e]	DSON149S1	60000	1																	51000	1
NURE Seds[e]	DSON151S1	62800	1																	39700	1
NURE Seds[e]	DSON152S1	65600	1																	26600	1
NURE Seds[e]	DSON153S1	62900	1																	43200	1
NURE Seds[e]	DSON154S1	65700	1																	33500	1
NURE Seds[e]	DSON155S1	71300	1																	62900	1
NURE Seds[e]	DSON156S1	62800	1																	32800	1
NURE Seds[e]	DSON157S1	64800	1																	37400	1
NURE Seds[e]	DSON158S1	67700	1																	36000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON122S1			350	1											40	1		
NURE Seds[e]	DSON123S1			400	1											50	1		
NURE Seds[e]	DSON124S1			750	1											80	1		
NURE Seds[e]	DSON125S1			850	1											60	1		
NURE Seds[e]	DSON126S1			320	1											30	1		
NURE Seds[e]	DSON127S1			1450	1											60	1		
NURE Seds[e]	DSON128S1			840	1											130	1		
NURE Seds[e]	DSON129S1			690	1											70	1		
NURE Seds[e]	DSON130S1			960	1											80	1		
NURE Seds[e]	DSON131S1			870	1											110	1		
NURE Seds[e]	DSON132S1			1690	1											140	1		
NURE Seds[e]	DSON133S1			1080	1											170	1		
NURE Seds[e]	DSON134S1			850	1											160	1		
NURE Seds[e]	DSON136S1			520	1											90	1		
NURE Seds[e]	DSON137S1			1340	1											50	1		
NURE Seds[e]	DSON138S1			860	1											70	1		
NURE Seds[e]	DSON139S1			350	1											50	1		
NURE Seds[e]	DSON140S1			1240	1											80	1		
NURE Seds[e]	DSON141S1			1140	1											110	1		
NURE Seds[e]	DSON142S1			750	1											140	1		
NURE Seds[e]	DSON143S1			650	1											90	1		
NURE Seds[e]	DSON144S1			960	1											90	1		
NURE Seds[e]	DSON145S1			860	1											110	1		
NURE Seds[e]	DSON146S1			970	1											90	1		
NURE Seds[e]	DSON147S1			1020	1											140	1		
NURE Seds[e]	DSON148S1			850	1											130	1		
NURE Seds[e]	DSON149S1			1080	1											180	1		
NURE Seds[e]	DSON151S1			880	1											160	1		
NURE Seds[e]	DSON152S1			500	1											60	1		
NURE Seds[e]	DSON153S1			1230	1											130	1		
NURE Seds[e]	DSON154S1			700	1											90	1		
NURE Seds[e]	DSON155S1			780	1											230	1		
NURE Seds[e]	DSON156S1			590	1											80	1		
NURE Seds[e]	DSON157S1			550	1											90	1		
NURE Seds[e]	DSON158S1			640	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON159S1	78300	1																	33500	1
NURE Seds[e]	DSON160S1	64800	1																	29900	1
NURE Seds[e]	DSON161S1	61300	1																	28800	1
NURE Seds[e]	DSON162S1	71000	1																	36700	1
NURE Seds[e]	DSON163S1	67200	1																	49500	1
NURE Seds[e]	DSON164S1	64300	1																	25900	1
NURE Seds[e]	DSON165S1	55700	1																	43600	1
NURE Seds[e]	DSON166S1	55900	1																	38200	1
NURE Seds[e]	DSON167S1	74300	1																	26800	1
NURE Seds[e]	DSON168S1	51300	1																	46200	1
NURE Seds[e]	DSON169S1	63200	1																	25400	1
NURE Seds[e]	DSON170S1	62400	1																	22300	1
NURE Seds[e]	DSON171S1	67800	1																	27600	1
NURE Seds[e]	DSON172S1	62500	1																	29700	1
NURE Seds[e]	DSON173S1	55900	1																	27100	1
NURE Seds[e]	DSON174S1	64600	1																	42000	1
NURE Seds[e]	DSON175S1	55800	1																	39400	1
NURE Seds[e]	DSON176S1	67100	1																	32200	1
NURE Seds[e]	DSON177S1	75000	1																	36600	1
NURE Seds[e]	DSON178S1	64700	1																	42800	1
NURE Seds[e]	DSON179S1	59200	1																	48400	1
NURE Seds[e]	DSON180S1	58600	1																	44000	1
NURE Seds[e]	DSON181S1	74800	1																	27400	1
NURE Seds[e]	DSON182S1	53800	1																	18100	1
NURE Seds[e]	DSON183S1	57900	1																	31300	1
NURE Seds[e]	DSON184S1	57300	1																	36500	1
NURE Seds[e]	DSON185S1	56500	1																	33500	1
NURE Seds[e]	DSON186S1	68500	1																	31200	1
NURE Seds[e]	DSON187S1	66700	1																	27800	1
NURE Seds[e]	DSON188S1	68400	1																	29600	1
NURE Seds[e]	DSON189S1	64200	1																	34100	1
NURE Seds[e]	DSON190S1	65000	1																	25300	1
NURE Seds[e]	DSON191S1	65000	1																	26300	1
NURE Seds[e]	DSON194S1	57400	1																	28400	1
NURE Seds[e]	DSON195S1	59700	1																	27100	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON159S1			920	1											80	1		
NURE Seds[e]	DSON160S1			920	1											90	1		
NURE Seds[e]	DSON161S1			670	1											60	1		
NURE Seds[e]	DSON162S1			480	1											90	1		
NURE Seds[e]	DSON163S1			880	1											140	1		
NURE Seds[e]	DSON164S1			1080	1											60	1		
NURE Seds[e]	DSON165S1			750	1											90	1		
NURE Seds[e]	DSON166S1			870	1											120	1		
NURE Seds[e]	DSON167S1			670	1											90	1		
NURE Seds[e]	DSON168S1			1010	1											90	1		
NURE Seds[e]	DSON169S1			510	1											60	1		
NURE Seds[e]	DSON170S1			480	1											50	1		
NURE Seds[e]	DSON171S1			790	1											80	1		
NURE Seds[e]	DSON172S1			780	1											100	1		
NURE Seds[e]	DSON173S1			670	1											50	1		
NURE Seds[e]	DSON174S1			690	1											100	1		
NURE Seds[e]	DSON175S1			850	1											70	1		
NURE Seds[e]	DSON176S1			1020	1											90	1		
NURE Seds[e]	DSON177S1			850	1											80	1		
NURE Seds[e]	DSON178S1			940	1											110	1		
NURE Seds[e]	DSON179S1			1530	1											90	1		
NURE Seds[e]	DSON180S1			900	1											140	1		
NURE Seds[e]	DSON181S1			880	1											60	1		
NURE Seds[e]	DSON182S1			300	1											30	1		
NURE Seds[e]	DSON183S1			820	1											90	1		
NURE Seds[e]	DSON184S1			780	1											90	1		
NURE Seds[e]	DSON185S1			680	1											70	1		
NURE Seds[e]	DSON186S1			680	1											50	1		
NURE Seds[e]	DSON187S1			670	1											50	1		
NURE Seds[e]	DSON188S1			580	1											90	1		
NURE Seds[e]	DSON189S1			790	1											60	1		
NURE Seds[e]	DSON190S1			1080	1											70	1		
NURE Seds[e]	DSON191S1			1000	1											80	1		
NURE Seds[e]	DSON194S1			740	1											70	1		
NURE Seds[e]	DSON195S1			820	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON196S1	57200	1																	34400	1
NURE Seds[e]	DSON197S1	63400	1																	24700	1
NURE Seds[e]	DSON198S1	69300	1																	37800	1
NURE Seds[e]	DSON199S1	61600	1																	34500	1
NURE Seds[e]	DSON200S1	61300	1																	26700	1
NURE Seds[e]	DSON203S1	61400	1																	21300	1
NURE Seds[e]	DSON204S1	73300	1																	30700	1
NURE Seds[e]	DSON205S1	61700	1																	28400	1
NURE Seds[e]	DSON206S1	53200	1																	16700	1
NURE Seds[e]	DSON207S1	51600	1																	20500	1
NURE Seds[e]	DSON208S1	55900	1																	24900	1
NURE Seds[e]	DSON209S1	57100	1																	26800	1
NURE Seds[e]	DSON210S1	57800	1																	25400	1
NURE Seds[e]	DSON211S1	52700	1																	22200	1
NURE Seds[e]	DSON212S1	62200	1																	25900	1
NURE Seds[e]	DSON213S1	63600	1																	26600	1
NURE Seds[e]	DSON214S1	65400	1																	29400	1
NURE Seds[e]	DSON215S1	56200	1																	16900	1
NURE Seds[e]	DSON217S1	56700	1																	23000	1
NURE Seds[e]	DSON218S1	64500	1																	23800	1
NURE Seds[e]	DSON219S1	54200	1																	19800	1
NURE Seds[e]	DSON220S1	71300	1																	30600	1
NURE Seds[e]	DSON221S1	65800	1																	34900	1
NURE Seds[e]	DSON222S1	71100	1																	27600	1
NURE Seds[e]	DSON223S1	68600	1																	29300	1
NURE Seds[e]	DSON224S1	54900	1																	22600	1
NURE Seds[e]	DSON227S1	61400	1																	38300	1
NURE Seds[e]	DSON229S1	66700	1																	31300	1
NURE Seds[e]	DSON232S1	61900	1																	23000	1
NURE Seds[e]	DSON233S1	68900	1																	28600	1
NURE Seds[e]	DSON234S1	60700	1																	32000	1
NURE Seds[e]	DSON235S1	69100	1																	40000	1
NURE Seds[e]	DSON236S1	61900	1																	28700	1
NURE Seds[e]	DSON238S1	54600	1																	27500	1
NURE Seds[e]	DSON239S1	73300	1																	29700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON196S1			620	1											90	1		
NURE Seds[e]	DSON197S1			300	1											50	1		
NURE Seds[e]	DSON198S1			940	1											70	1		
NURE Seds[e]	DSON199S1			1070	1											70	1		
NURE Seds[e]	DSON200S1			470	1											40	1		
NURE Seds[e]	DSON203S1			580	1											50	1		
NURE Seds[e]	DSON204S1			640	1											50	1		
NURE Seds[e]	DSON205S1			830	1											70	1		
NURE Seds[e]	DSON206S1			180	1											30	1		
NURE Seds[e]	DSON207S1			350	1											10	0		
NURE Seds[e]	DSON208S1			330	1											20	1		
NURE Seds[e]	DSON209S1			630	1											60	1		
NURE Seds[e]	DSON210S1			790	1											100	1		
NURE Seds[e]	DSON211S1			580	1											60	1		
NURE Seds[e]	DSON212S1			340	1											20	1		
NURE Seds[e]	DSON213S1			560	1											100	1		
NURE Seds[e]	DSON214S1			830	1											10	0		
NURE Seds[e]	DSON215S1			340	1											40	1		
NURE Seds[e]	DSON217S1			370	1											30	1		
NURE Seds[e]	DSON218S1			740	1											40	1		
NURE Seds[e]	DSON219S1			530	1											40	1		
NURE Seds[e]	DSON220S1			700	1											60	1		
NURE Seds[e]	DSON221S1			590	1											50	1		
NURE Seds[e]	DSON222S1			570	1											30	1		
NURE Seds[e]	DSON223S1			420	1											100	1		
NURE Seds[e]	DSON224S1			450	1											40	1		
NURE Seds[e]	DSON227S1			650	1											90	1		
NURE Seds[e]	DSON229S1			650	1											70	1		
NURE Seds[e]	DSON232S1			640	1											50	1		
NURE Seds[e]	DSON233S1			520	1											50	1		
NURE Seds[e]	DSON234S1			760	1											80	1		
NURE Seds[e]	DSON235S1			1600	1											80	1		
NURE Seds[e]	DSON236S1			520	1											60	1		
NURE Seds[e]	DSON238S1			910	1											30	1		
NURE Seds[e]	DSON239S1			550	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON240S1	72400	1																	34400	1
NURE Seds[e]	DSON242S1	68800	1																	34900	1
NURE Seds[e]	DSON245S1	66300	1																	21500	1
NURE Seds[e]	DSON246S1	66800	1																	25800	1
NURE Seds[e]	DSON248S1	61700	1																	33500	1
NURE Seds[e]	DSON249S1	54400	1																	43300	1
NURE Seds[e]	DSON250S1	51600	1																	18500	1
NURE Seds[e]	DSON252S1	54000	1																	27300	1
NURE Seds[e]	DSON255S1	51500	1																	15700	1
NURE Seds[e]	DSON256S1	50900	1																	21500	1
NURE Seds[e]	DSON259S1	73100	1																	32300	1
NURE Seds[e]	DSON260S1	62000	1																	29600	1
NURE Seds[e]	DSON261S1	63900	1																	24500	1
NURE Seds[e]	DSON262S1	60800	1																	27100	1
NURE Seds[e]	DSON263S1	72700	1																	30200	1
NURE Seds[e]	DSON264S1	61400	1																	20700	1
NURE Seds[e]	DSON265S1	64700	1																	29300	1
NURE Seds[e]	DSON266S1	42200	1																	17300	1
NURE Seds[e]	DSON267S1	59600	1																	24800	1
NURE Seds[e]	DSON268S1	43800	1																	21600	1
NURE Seds[e]	DSON269S1	52100	1																	23600	1
NURE Seds[e]	DSON270S1	58200	1																	23000	1
NURE Seds[e]	DSON271S1	63900	1																	26300	1
NURE Seds[e]	DSON274S1	53800	1																	25400	1
NURE Seds[e]	DSON275S1	51900	1																	18400	1
NURE Seds[e]	DSON276S1	64700	1																	29100	1
NURE Seds[e]	DSON277S1	61700	1																	29800	1
NURE Seds[e]	DSON278S1	64600	1																	25400	1
NURE Seds[e]	DSON279S1	68300	1																	27900	1
NURE Seds[e]	DSON281S1	56600	1																	43800	1
NURE Seds[e]	DSON282S1	61500	1																	36100	1
NURE Seds[e]	DSON283S1	52000	1																	17500	1
NURE Seds[e]	DSON284S1	69000	1																	26400	1
NURE Seds[e]	DSON285S1	66200	1																	35100	1
NURE Seds[e]	DSON286S1	73100	1																	31700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON240S1			650	1											40	1		
NURE Seds[e]	DSON242S1			570	1											50	1		
NURE Seds[e]	DSON245S1			350	1											30	1		
NURE Seds[e]	DSON246S1			750	1											110	1		
NURE Seds[e]	DSON248S1			740	1											90	1		
NURE Seds[e]	DSON249S1			1640	1											150	1		
NURE Seds[e]	DSON250S1			590	1											40	1		
NURE Seds[e]	DSON252S1			630	1											40	1		
NURE Seds[e]	DSON255S1			520	1											40	1		
NURE Seds[e]	DSON256S1			1050	1											30	1		
NURE Seds[e]	DSON259S1			850	1											70	1		
NURE Seds[e]	DSON260S1			1660	1											50	1		
NURE Seds[e]	DSON261S1			1040	1											50	1		
NURE Seds[e]	DSON262S1			1350	1											70	1		
NURE Seds[e]	DSON263S1			780	1											60	1		
NURE Seds[e]	DSON264S1			1440	1											40	1		
NURE Seds[e]	DSON265S1			1010	1											70	1		
NURE Seds[e]	DSON266S1			460	1											30	1		
NURE Seds[e]	DSON267S1			740	1											60	1		
NURE Seds[e]	DSON268S1			390	1											40	1		
NURE Seds[e]	DSON269S1			1150	1											50	1		
NURE Seds[e]	DSON270S1			920	1											40	1		
NURE Seds[e]	DSON271S1			1330	1											80	1		
NURE Seds[e]	DSON274S1			580	1											60	1		
NURE Seds[e]	DSON275S1			510	1											40	1		
NURE Seds[e]	DSON276S1			790	1											70	1		
NURE Seds[e]	DSON277S1			690	1											60	1		
NURE Seds[e]	DSON278S1			630	1											50	1		
NURE Seds[e]	DSON279S1			2600	1											70	1		
NURE Seds[e]	DSON281S1			960	1											150	1		
NURE Seds[e]	DSON282S1			720	1											110	1		
NURE Seds[e]	DSON283S1			900	1											40	1		
NURE Seds[e]	DSON284S1			580	1											50	1		
NURE Seds[e]	DSON285S1			1180	1											80	1		
NURE Seds[e]	DSON286S1			1420	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON287S1	71500	1																	34400	1
NURE Seds[e]	DSON288S1	62100	1																	16000	1
NURE Seds[e]	DSON291S1	62800	1																	28600	1
NURE Seds[e]	DSON292S1	63900	1																	23800	1
NURE Seds[e]	DSON294S1	58800	1																	21600	1
NURE Seds[e]	DSON295S1	65100	1																	23900	1
NURE Seds[e]	DSON296S1	64600	1																	23100	1
NURE Seds[e]	DSON297S1	52200	1																	18400	1
NURE Seds[e]	DSON298S1	57900	1																	23900	1
NURE Seds[e]	DSON299S1	48400	1																	24100	1
NURE Seds[e]	DSON300S1	59800	1																	24600	1
NURE Seds[e]	DSON301S1	66200	1																	26600	1
NURE Seds[e]	DSON302S1	92300	1																	30300	1
NURE Seds[e]	DSON303S1	61000	1																	44000	1
NURE Seds[e]	DSON304S1	62500	1																	43600	1
NURE Seds[e]	DSON305S1	65700	1																	30100	1
NURE Seds[e]	DSON307S1	58800	1																	25800	1
NURE Seds[e]	DSON308S1	59000	1																	20800	1
NURE Seds[e]	DSON311S1	55800	1																	16200	1
NURE Seds[e]	DSON312S1	68100	1																	29600	1
NURE Seds[e]	DSON313S1	55400	1																	28300	1
NURE Seds[e]	DSON314S1	51400	1																	26100	1
NURE Seds[e]	DSON315S1	55700	1																	31800	1
NURE Seds[e]	DSON316S1	61900	1																	26400	1
NURE Seds[e]	DSON317S1	55700	1																	29300	1
NURE Seds[e]	DSON318S1	67300	1																	26000	1
NURE Seds[e]	DSON321S1	66200	1																	20500	1
NURE Seds[e]	DSON322S1	59600	1																	23200	1
NURE Seds[e]	DSON323S1	57900	1																	26400	1
NURE Seds[e]	DSON324S1	56600	1																	32500	1
NURE Seds[e]	DSON325S1	63500	1																	28600	1
NURE Seds[e]	DSON326S1	60900	1																	28500	1
NURE Seds[e]	DSON327S1	54100	1																	22100	1
NURE Seds[e]	DSON328S1	62700	1																	33900	1
NURE Seds[e]	DSON330S1	57500	1																	24400	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON287S1			1320	1											80	1		
NURE Seds[e]	DSON288S1			330	1											40	1		
NURE Seds[e]	DSON291S1			740	1											30	1		
NURE Seds[e]	DSON292S1			1040	1											40	1		
NURE Seds[e]	DSON294S1			760	1											40	1		
NURE Seds[e]	DSON295S1			870	1											60	1		
NURE Seds[e]	DSON296S1			680	1											50	1		
NURE Seds[e]	DSON297S1			880	1											50	1		
NURE Seds[e]	DSON298S1			570	1											50	1		
NURE Seds[e]	DSON299S1			370	1											40	1		
NURE Seds[e]	DSON300S1			740	1											40	1		
NURE Seds[e]	DSON301S1			800	1											50	1		
NURE Seds[e]	DSON302S1			830	1											90	1		
NURE Seds[e]	DSON303S1			940	1											130	1		
NURE Seds[e]	DSON304S1			880	1											110	1		
NURE Seds[e]	DSON305S1			1030	1											70	1		
NURE Seds[e]	DSON307S1			700	1											80	1		
NURE Seds[e]	DSON308S1			670	1											60	1		
NURE Seds[e]	DSON311S1			640	1											50	1		
NURE Seds[e]	DSON312S1			1210	1											70	1		
NURE Seds[e]	DSON313S1			1140	1											50	1		
NURE Seds[e]	DSON314S1			720	1											90	1		
NURE Seds[e]	DSON315S1			650	1											80	1		
NURE Seds[e]	DSON316S1			510	1											50	1		
NURE Seds[e]	DSON317S1			630	1											70	1		
NURE Seds[e]	DSON318S1			700	1											60	1		
NURE Seds[e]	DSON321S1			580	1											50	1		
NURE Seds[e]	DSON322S1			530	1											30	1		
NURE Seds[e]	DSON323S1			690	1											10	0		
NURE Seds[e]	DSON324S1			610	1											70	1		
NURE Seds[e]	DSON325S1			880	1											10	0		
NURE Seds[e]	DSON326S1			920	1											30	1		
NURE Seds[e]	DSON327S1			640	1											50	1		
NURE Seds[e]	DSON328S1			820	1											10	0		
NURE Seds[e]	DSON330S1			640	1											10	0		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON331S1	54200	1																	32700	1
NURE Seds[e]	DSON333S1	67100	1																	22700	1
NURE Seds[e]	DSON334S1	63100	1																	28700	1
NURE Seds[e]	DSON335S1	61100	1																	33700	1
NURE Seds[e]	DSON336S1	72200	1																	33000	1
NURE Seds[e]	DSON337S1	63900	1																	27900	1
NURE Seds[e]	DSON338S1	62500	1																	38500	1
NURE Seds[e]	DSON339S1	63200	1																	34700	1
NURE Seds[e]	DSON340S1	63900	1																	42100	1
NURE Seds[e]	DSON345S1	60900	1																	77200	1
NURE Seds[e]	DSON346S1	64200	1																	52000	1
NURE Seds[e]	DSON348S1	73600	1																	31800	1
NURE Seds[e]	DSON349S1	72200	1																	42900	1
NURE Seds[e]	DSON351S1	62300	1																	35500	1
NURE Seds[e]	DSON352S1	61900	1																	53800	1
NURE Seds[e]	DSON353S1	68500	1																	50900	1
NURE Seds[e]	DSON354S1	62100	1																	29000	1
NURE Seds[e]	DSON356S1	64200	1																	21600	1
NURE Seds[e]	DSON357S1	69700	1																	25200	1
NURE Seds[e]	DSON358S1	69100	1																	33400	1
NURE Seds[e]	DSON359S1	60400	1																	28300	1
NURE Seds[e]	DSON360S1	61100	1																	46200	1
NURE Seds[e]	DSON361S1	72000	1																	30800	1
NURE Seds[e]	DSON362S1	66900	1																	39700	1
NURE Seds[e]	DSON363S1	65800	1																	38400	1
NURE Seds[e]	DSON364S1	69300	1																	45000	1
NURE Seds[e]	DSON365S1	71600	1																	45800	1
NURE Seds[e]	DSON366S1	65200	1																	60400	1
NURE Seds[e]	DSON368S1	59900	1																	24400	1
NURE Seds[e]	DSON370S1	71500	1																	31200	1
NURE Seds[e]	DSON373S1	61700	1																	40000	1
NURE Seds[e]	DSON375S1	70400	1																	41900	1
NURE Seds[e]	DSON376S1	72200	1																	31100	1
NURE Seds[e]	DSON377S1	59500	1																	44700	1
NURE Seds[e]	DSON378S1	61500	1																	27500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON331S1			930	1											20	1		
NURE Seds[e]	DSON333S1			850	1											50	1		
NURE Seds[e]	DSON334S1			1080	1											50	1		
NURE Seds[e]	DSON335S1			570	1											60	1		
NURE Seds[e]	DSON336S1			790	1											50	1		
NURE Seds[e]	DSON337S1			1160	1											10	0		
NURE Seds[e]	DSON338S1			1120	1											50	1		
NURE Seds[e]	DSON339S1			950	1											70	1		
NURE Seds[e]	DSON340S1			740	1											90	1		
NURE Seds[e]	DSON345S1			1510	1											150	1		
NURE Seds[e]	DSON346S1			1060	1											110	1		
NURE Seds[e]	DSON348S1			1190	1											40	1		
NURE Seds[e]	DSON349S1			790	1											40	1		
NURE Seds[e]	DSON351S1			980	1											80	1		
NURE Seds[e]	DSON352S1			860	1											120	1		
NURE Seds[e]	DSON353S1			1410	1											90	1		
NURE Seds[e]	DSON354S1			690	1											50	1		
NURE Seds[e]	DSON356S1			1140	1											50	1		
NURE Seds[e]	DSON357S1			1120	1											10	0		
NURE Seds[e]	DSON358S1			1920	1											50	1		
NURE Seds[e]	DSON359S1			1380	1											80	1		
NURE Seds[e]	DSON360S1			1290	1											80	1		
NURE Seds[e]	DSON361S1			1290	1											50	1		
NURE Seds[e]	DSON362S1			1600	1											110	1		
NURE Seds[e]	DSON363S1			1020	1											60	1		
NURE Seds[e]	DSON364S1			1320	1											90	1		
NURE Seds[e]	DSON365S1			830	1											10	0		
NURE Seds[e]	DSON366S1			1170	1											130	1		
NURE Seds[e]	DSON368S1			1080	1											70	1		
NURE Seds[e]	DSON370S1			1060	1											30	1		
NURE Seds[e]	DSON373S1			800	1											140	1		
NURE Seds[e]	DSON375S1			840	1											80	1		
NURE Seds[e]	DSON376S1			690	1											70	1		
NURE Seds[e]	DSON377S1			1120	1											200	1		
NURE Seds[e]	DSON378S1			1710	1											50	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON379S1	67600	1																	35600	1
NURE Seds[e]	DSON380S1	70900	1																	29100	1
NURE Seds[e]	DSON381S1	71400	1																	24600	1
NURE Seds[e]	DSON382S1	69600	1																	28300	1
NURE Seds[e]	DSON383S1	73400	1																	40600	1
NURE Seds[e]	DSON384S1	70100	1																	29800	1
NURE Seds[e]	DSON385S1	67800	1																	36200	1
NURE Seds[e]	DSON386S1	66100	1																	30900	1
NURE Seds[e]	DSON387S1	76500	1																	24900	1
NURE Seds[e]	DSON388S1	63200	1																	23700	1
NURE Seds[e]	DSON389S1	62200	1																	25000	1
NURE Seds[e]	DSON390S1	64100	1																	24500	1
NURE Seds[e]	DSON391S1	66100	1																	31600	1
NURE Seds[e]	DSON392S1	68600	1																	25300	1
NURE Seds[e]	DSON393S1	53400	1																	20500	1
NURE Seds[e]	DSON394S1	71900	1																	37000	1
NURE Seds[e]	DSON395S1	60400	1																	24300	1
NURE Seds[e]	DSON396S1	72100	1																	24100	1
NURE Seds[e]	DSON397S1	67100	1																	29600	1
NURE Seds[e]	DSON398S1	65700	1																	28200	1
NURE Seds[e]	DSON399S1	82500	1																	40800	1
NURE Seds[e]	DSON400S1	71000	1																	36500	1
NURE Seds[e]	DSON401S1	63300	1																	47700	1
NURE Seds[e]	DSON402S1	65900	1																	45000	1
NURE Seds[e]	DSON403S1	66700	1																	54400	1
NURE Seds[e]	DSON404S1	59000	1																	50600	1
NURE Seds[e]	DSON405S1	68900	1																	46800	1
NURE Seds[e]	DSON406S1	67900	1																	38900	1
NURE Seds[e]	DSON407S1	54300	1																	29200	1
NURE Seds[e]	DSON408S1	73800	1																	26800	1
NURE Seds[e]	DSON409S1	66800	1																	38900	1
NURE Seds[e]	DSON410S1	65300	1																	40600	1
NURE Seds[e]	DSON411S1	64600	1																	48200	1
NURE Seds[e]	DSON412S1	63600	1																	36000	1
NURE Seds[e]	DSON413S1	500	0																	46200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON379S1			790	1											50	1		
NURE Seds[e]	DSON380S1			1070	1											60	1		
NURE Seds[e]	DSON381S1			1280	1														
NURE Seds[e]	DSON382S1			1010	1											110	1		
NURE Seds[e]	DSON383S1			750	1											30	1		
NURE Seds[e]	DSON384S1			1120	1											60	1		
NURE Seds[e]	DSON385S1			840	1											30	1		
NURE Seds[e]	DSON386S1			1150	1											40	1		
NURE Seds[e]	DSON387S1			950	1											10	0		
NURE Seds[e]	DSON388S1			1270	1														
NURE Seds[e]	DSON389S1			500	1											40	1		
NURE Seds[e]	DSON390S1			1730	1											20	1		
NURE Seds[e]	DSON391S1			1630	1														
NURE Seds[e]	DSON392S1			1010	1											70	1		
NURE Seds[e]	DSON393S1			730	1											30	1		
NURE Seds[e]	DSON394S1			1070	1											50	1		
NURE Seds[e]	DSON395S1			1550	1											10	0		
NURE Seds[e]	DSON396S1			940	1											20	1		
NURE Seds[e]	DSON397S1			870	1											70	1		
NURE Seds[e]	DSON398S1			1180	1											20	1		
NURE Seds[e]	DSON399S1			680	1											10	0		
NURE Seds[e]	DSON400S1			720	1											50	1		
NURE Seds[e]	DSON401S1			1580	1											40	1		
NURE Seds[e]	DSON402S1			20	0											50	1		
NURE Seds[e]	DSON403S1			930	1											130	1		
NURE Seds[e]	DSON404S1			1370	1											60	1		
NURE Seds[e]	DSON405S1			20	0											30	1		
NURE Seds[e]	DSON406S1			360	1											10	0		
NURE Seds[e]	DSON407S1			770	1											10	0		
NURE Seds[e]	DSON408S1			20	0											40	1		
NURE Seds[e]	DSON409S1			420	1											40	1		
NURE Seds[e]	DSON410S1			20	0											70	1		
NURE Seds[e]	DSON411S1			20	0											80	1		
NURE Seds[e]	DSON412S1			20	0											10	0		
NURE Seds[e]	DSON413S1			20	0											30	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON414S1	61600	1																	47600	1
NURE Seds[e]	DSON415S1	60300	1																	46200	1
NURE Seds[e]	DSON416S1	500	0																	38700	1
NURE Seds[e]	DSON417S1	62500	1																	29700	1
NURE Seds[e]	DSON418S1	63900	1																	29800	1
NURE Seds[e]	DSON419S1	56600	1																	23900	1
NURE Seds[e]	DSON420S1	500	0																	22900	1
NURE Seds[e]	DSON421S1	500	0																	43100	1
NURE Seds[e]	DSON422S1	500	0																	39900	1
NURE Seds[e]	DSON423S1	500	0																	40800	1
NURE Seds[e]	DSON424S1	500	0																	43800	1
NURE Seds[e]	DSON425S1	500	0																	25500	1
NURE Seds[e]	DSON426S1	500	0																	39600	1
NURE Seds[e]	DSON427S1	500	0																	24400	1
NURE Seds[e]	DSON428S1	67000	1																	23400	1
NURE Seds[e]	DSON429S1	68900	1																	25500	1
NURE Seds[e]	DSON430S1	69100	1																	21300	1
NURE Seds[e]	DSON431S1	70300	1																	27800	1
NURE Seds[e]	DSON432S1	66900	1																	25000	1
NURE Seds[e]	DSON433S1	53700	1																	25400	1
NURE Seds[e]	DSON434S1	52300	1																	25300	1
NURE Seds[e]	DSON435S1	500	0																	26300	1
NURE Seds[e]	DSON436S1	67200	1																	22300	1
NURE Seds[e]	DSON437S1	500	0																	28400	1
NURE Seds[e]	DSON438S1	500	0																	21200	1
NURE Seds[e]	DSON439S1	47600	1																	14400	1
NURE Seds[e]	DSON440S1	500	0																	28600	1
NURE Seds[e]	DSON441S1	500	0																	28200	1
NURE Seds[e]	DSON442S1	500	0																	32000	1
NURE Seds[e]	DSON443S1	500	0																	19400	1
NURE Seds[e]	DSON444S1	500	0																	18600	1
NURE Seds[e]	DSON445S1	500	0																	24800	1
NURE Seds[e]	DSON446S1	53600	1																	22800	1
NURE Seds[e]	DSON447S1	500	0																	26100	1
NURE Seds[e]	DSON448S1	500	0																	30300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON414S1			20	0											80	1		
NURE Seds[e]	DSON415S1			490	1											20	1		
NURE Seds[e]	DSON416S1			300	1											10	0		
NURE Seds[e]	DSON417S1			20	0											10	0		
NURE Seds[e]	DSON418S1			350	1											10	0		
NURE Seds[e]	DSON419S1			420	1											70	1		
NURE Seds[e]	DSON420S1			20	0											10	0		
NURE Seds[e]	DSON421S1			20	0														
NURE Seds[e]	DSON422S1			160	1											10	0		
NURE Seds[e]	DSON423S1			450	1											10	0		
NURE Seds[e]	DSON424S1			620	1											10	0		
NURE Seds[e]	DSON425S1			350	1											40	1		
NURE Seds[e]	DSON426S1			370	1											10	0		
NURE Seds[e]	DSON427S1			260	1											20	1		
NURE Seds[e]	DSON428S1			250	1											20	1		
NURE Seds[e]	DSON429S1			300	1											40	1		
NURE Seds[e]	DSON430S1			370	1											20	1		
NURE Seds[e]	DSON431S1			460	1											50	1		
NURE Seds[e]	DSON432S1			540	1											40	1		
NURE Seds[e]	DSON433S1			520	1											10	0		
NURE Seds[e]	DSON434S1			350	1											40	1		
NURE Seds[e]	DSON435S1			320	1														
NURE Seds[e]	DSON436S1			550	1											40	1		
NURE Seds[e]	DSON437S1			390	1											10	0		
NURE Seds[e]	DSON438S1			500	1											10	0		
NURE Seds[e]	DSON439S1			890	1											20	1		
NURE Seds[e]	DSON440S1			820	1											30	1		
NURE Seds[e]	DSON441S1			650	1											10	0		
NURE Seds[e]	DSON442S1			490	1											10	0		
NURE Seds[e]	DSON443S1			270	1											10	0		
NURE Seds[e]	DSON444S1			230	1											10	0		
NURE Seds[e]	DSON445S1			260	1											10	0		
NURE Seds[e]	DSON446S1			410	1											10	0		
NURE Seds[e]	DSON447S1			510	1											30	1		
NURE Seds[e]	DSON448S1			470	1														

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON449S1	63100	1																	27100	1
NURE Seds[e]	DSON450S1	57200	1																	26300	1
NURE Seds[e]	DSON451S1	500	0																	25300	1
NURE Seds[e]	DSON453S1	69500	1																	26500	1
NURE Seds[e]	DSON454S1	71400	1																	28600	1
NURE Seds[e]	DSON455S1	69700	1																	21800	1
NURE Seds[e]	DSON456S1	59700	1																	25600	1
NURE Seds[e]	DSON457S1	500	0																		
NURE Seds[e]	DSON458S1	500	0																		
NURE Seds[e]	DSON459S1	500	0																		
NURE Seds[e]	DSON460S1	67300	1																	29200	1
NURE Seds[e]	DSON461S1	49000	1																	21600	1
NURE Seds[e]	DSON462S1	71200	1																	26600	1
NURE Seds[e]	DSON463S1	60900	1																	22100	1
NURE Seds[e]	DSON465S1	69300	1																	28500	1
NURE Seds[e]	DSON466S1	58300	1																	29000	1
NURE Seds[e]	DSON467S1	60100	1																	23700	1
NURE Seds[e]	DSON468S1	65100	1																	35100	1
NURE Seds[e]	DSON469S1	66700	1																	31200	1
NURE Seds[e]	DSON470S1	63600	1																	30100	1
NURE Seds[e]	DSON471S1	64100	1																	39500	1
NURE Seds[e]	DSON472S1	70500	1																	51500	1
NURE Seds[e]	DSON473S1	54100	1																	35900	1
NURE Seds[e]	DSON474S1	63700	1																	35900	1
NURE Seds[e]	DSON475S1	64500	1																	29900	1
NURE Seds[e]	DSON476S1	59100	1																	34200	1
NURE Seds[e]	DSON477S1	59300	1																	25500	1
NURE Seds[e]	DSON478S1	58200	1																	27400	1
NURE Seds[e]	DSON479S1	60600	1																	35300	1
NURE Seds[e]	DSON480S1	63000	1																	34600	1
NURE Seds[e]	DSON481S1	62700	1																	28300	1
NURE Seds[e]	DSON482S1	59800	1																	31800	1
NURE Seds[e]	DSON483S1	58700	1																	35300	1
NURE Seds[e]	DSON484S1	56600	1																	26500	1
NURE Seds[e]	DSON485S1	71400	1																	45500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON449S1			530	1											10	0		
NURE Seds[e]	DSON450S1			1590	1											10	0		
NURE Seds[e]	DSON451S1			1310	1											10	0		
NURE Seds[e]	DSON453S1			660	1														
NURE Seds[e]	DSON454S1			510	1											60	1		
NURE Seds[e]	DSON455S1			380	1											30	1		
NURE Seds[e]	DSON456S1			810	1											40	1		
NURE Seds[e]	DSON457S1			20	0														
NURE Seds[e]	DSON458S1			20	0														
NURE Seds[e]	DSON459S1			20	0														
NURE Seds[e]	DSON460S1			850	1											10	0		
NURE Seds[e]	DSON461S1			950	1											40	1		
NURE Seds[e]	DSON462S1			980	1											30	1		
NURE Seds[e]	DSON463S1			1210	1											10	0		
NURE Seds[e]	DSON465S1			1100	1											10	0		
NURE Seds[e]	DSON466S1			1020	1											90	1		
NURE Seds[e]	DSON467S1			940	1											60	1		
NURE Seds[e]	DSON468S1			1000	1											70	1		
NURE Seds[e]	DSON469S1			1550	1											80	1		
NURE Seds[e]	DSON470S1			1130	1											140	1		
NURE Seds[e]	DSON471S1			1260	1											170	1		
NURE Seds[e]	DSON472S1			1600	1											140	1		
NURE Seds[e]	DSON473S1			1590	1											220	1		
NURE Seds[e]	DSON474S1			1280	1											110	1		
NURE Seds[e]	DSON475S1			830	1											50	1		
NURE Seds[e]	DSON476S1			1550	1											40	1		
NURE Seds[e]	DSON477S1			1230	1														
NURE Seds[e]	DSON478S1			1030	1											10	0		
NURE Seds[e]	DSON479S1			1610	1											50	1		
NURE Seds[e]	DSON480S1			1350	1											220	1		
NURE Seds[e]	DSON481S1			1200	1											50	1		
NURE Seds[e]	DSON482S1			1390	1											140	1		
NURE Seds[e]	DSON483S1			1140	1											80	1		
NURE Seds[e]	DSON484S1			1180	1											50	1		
NURE Seds[e]	DSON485S1			520	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON486S1	76900	1																	30000	1
NURE Seds[e]	DSON487S1	60200	1																	37500	1
NURE Seds[e]	DSON488S1	63400	1																	36000	1
NURE Seds[e]	DSON489S1	99900	1																	45400	1
NURE Seds[e]	DSON490S1	55900	1																	49600	1
NURE Seds[e]	DSON491S1	84600	1																	60800	1
NURE Seds[e]	DSON492S1	60800	1																	36600	1
NURE Seds[e]	DSON493S1	82300	1																	38100	1
NURE Seds[e]	DSON494S1	55600	1																	36500	1
NURE Seds[e]	DSON496S1	59900	1																	24800	1
NURE Seds[e]	DSON497S1	85800	1																	26000	1
NURE Seds[e]	DSON498S1	61700	1																		
NURE Seds[e]	DSOO002S1	71500	1																	31600	1
NURE Seds[e]	DSOO005S1	61900	1																	20500	1
NURE Seds[e]	DSOO007S1	54700	1																	54300	1
NURE Seds[e]	DSOO008S1	60100	1																	28000	1
NURE Seds[e]	DSOO009S1	54800	1																	22400	1
NURE Seds[e]	DSOO010S1	56700	1																	50000	1
NURE Seds[e]	DSOO011S1	52800	1																	68500	1
NURE Seds[e]	DSOO012S1	55700	1																	29600	1
NURE Seds[e]	DSOO013S1	58700	1																	40600	1
NURE Seds[e]	DSOO014S1	57800	1																	27000	1
NURE Seds[e]	DSOO015S1	56200	1																	17300	1
NURE Seds[e]	DSOO016S1	56200	1																	25500	1
NURE Seds[e]	DSOO018S1	54700	1																	23600	1
NURE Seds[e]	DSOO019S1	54700	1																	31500	1
NURE Seds[e]	DSOO021S1	47400	1																	18300	1
NURE Seds[e]	DSOO022S1	53300	1																	24000	1
NURE Seds[e]	DSOO023S1	53600	1																	25600	1
NURE Seds[e]	DSOO024S1	51600	1																	21900	1
NURE Seds[e]	DSOO026S1	56900	1																	25900	1
NURE Seds[e]	DSOO028S1	54300	1																	42800	1
NURE Seds[e]	DSOO033S1	54700	1																	41100	1
NURE Seds[e]	DSOO034S1	51300	1																	31800	1
NURE Seds[e]	DSOO037S1	46600	1																	25800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON486S1			660	1											70	1		
NURE Seds[e]	DSON487S1			1270	1											110	1		
NURE Seds[e]	DSON488S1			500	1											60	1		
NURE Seds[e]	DSON489S1			1000	1											130	1		
NURE Seds[e]	DSON490S1			1090	1											170	1		
NURE Seds[e]	DSON491S1			850	1											140	1		
NURE Seds[e]	DSON492S1			440	1											80	1		
NURE Seds[e]	DSON493S1			610	1											80	1		
NURE Seds[e]	DSON494S1			690	1											70	1		
NURE Seds[e]	DSON496S1			530	1											30	1		
NURE Seds[e]	DSON497S1			890	1											30	1		
NURE Seds[e]	DSON498S1			520	1											50	1		
NURE Seds[e]	DSOO002S1			620	1											110	1		
NURE Seds[e]	DSOO005S1			550	1											40	1		
NURE Seds[e]	DSOO007S1			1110	1											190	1		
NURE Seds[e]	DSOO008S1			490	1											80	1		
NURE Seds[e]	DSOO009S1			560	1											70	1		
NURE Seds[e]	DSOO010S1			870	1											140	1		
NURE Seds[e]	DSOO011S1			1410	1											250	1		
NURE Seds[e]	DSOO012S1			780	1											100	1		
NURE Seds[e]	DSOO013S1			790	1											80	1		
NURE Seds[e]	DSOO014S1			680	1											70	1		
NURE Seds[e]	DSOO015S1			350	1											40	1		
NURE Seds[e]	DSOO016S1			570	1											60	1		
NURE Seds[e]	DSOO018S1			670	1											40	1		
NURE Seds[e]	DSOO019S1			740	1											120	1		
NURE Seds[e]	DSOO021S1			450	1											40	1		
NURE Seds[e]	DSOO022S1			800	1											40	1		
NURE Seds[e]	DSOO023S1			440	1											40	1		
NURE Seds[e]	DSOO024S1			580	1											50	1		
NURE Seds[e]	DSOO026S1			600	1											60	1		
NURE Seds[e]	DSOO028S1			1140	1											160	1		
NURE Seds[e]	DSOO033S1			1110	1											150	1		
NURE Seds[e]	DSOO034S1			920	1											110	1		
NURE Seds[e]	DSOO037S1			580	1											250	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO040S1	57300	1																	24800	1
NURE Seds[e]	DSOO041S1	58600	1																	32200	1
NURE Seds[e]	DSOO045S1	55100	1																	26700	1
NURE Seds[e]	DSOO046S1	57300	1																	23800	1
NURE Seds[e]	DSOO047S1	54800	1																	26200	1
NURE Seds[e]	DSOO049S1	55900	1																	33300	1
NURE Seds[e]	DSOO050S1	55000	1																	22900	1
NURE Seds[e]	DSOO051S1	52600	1																	26300	1
NURE Seds[e]	DSOO052S1	52400	1																	26000	1
NURE Seds[e]	DSOO053S1	53500	1																	31200	1
NURE Seds[e]	DSOO054S1	49300	1																	21000	1
NURE Seds[e]	DSOO057S1	48900	1																	26300	1
NURE Seds[e]	DSOO058S1	49100	1																	16000	1
NURE Seds[e]	DSOO059S1	52900	1																	22800	1
NURE Seds[e]	DSOO060S1	51300	1																	27300	1
NURE Seds[e]	DSOO061S1	54900	1																	26600	1
NURE Seds[e]	DSOO062S1	56000	1																	36900	1
NURE Seds[e]	DSOO066S1	54300	1																	21900	1
NURE Seds[e]	DSOO068S1	51300	1																	19500	1
NURE Seds[e]	DSOO069S1	58100	1																	28700	1
NURE Seds[e]	DSOO071S1	53700	1																	29100	1
NURE Seds[e]	DSOO072S1	53200	1																	31400	1
NURE Seds[e]	DSOO074S1	51300	1																	19400	1
NURE Seds[e]	DSOO075S1	47100	1																	22900	1
NURE Seds[e]	DSOO076S1	52600	1																	26300	1
NURE Seds[e]	DSOO078S1	54400	1																	26500	1
NURE Seds[e]	DSOO079S1	50700	1																	25300	1
NURE Seds[e]	DSOO080S1	53600	1																	24700	1
NURE Seds[e]	DSOO081S1	47900	1																	21700	1
NURE Seds[e]	DSOO082S1	52000	1																	19900	1
NURE Seds[e]	DSOO083S1	51500	1																	22100	1
NURE Seds[e]	DSOO084S1	49700	1																	25100	1
NURE Seds[e]	DSOO085S1	48400	1																	33700	1
NURE Seds[e]	DSOO087S1	56900	1																	35300	1
NURE Seds[e]	DSOO088S1	47500	1																	23700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO040S1			480	1											130	1		
NURE Seds[e]	DSOO041S1			480	1											90	1		
NURE Seds[e]	DSOO045S1			640	1											50	1		
NURE Seds[e]	DSOO046S1			790	1											60	1		
NURE Seds[e]	DSOO047S1			720	1											60	1		
NURE Seds[e]	DSOO049S1			730	1											60	1		
NURE Seds[e]	DSOO050S1			660	1											50	1		
NURE Seds[e]	DSOO051S1			570	1											60	1		
NURE Seds[e]	DSOO052S1			510	1											80	1		
NURE Seds[e]	DSOO053S1			610	1											100	1		
NURE Seds[e]	DSOO054S1			540	1											60	1		
NURE Seds[e]	DSOO057S1			680	1											40	1		
NURE Seds[e]	DSOO058S1			210	1											20	1		
NURE Seds[e]	DSOO059S1			510	1											40	1		
NURE Seds[e]	DSOO060S1			1030	1											50	1		
NURE Seds[e]	DSOO061S1			520	1											110	1		
NURE Seds[e]	DSOO062S1			620	1											120	1		
NURE Seds[e]	DSOO066S1			550	1											60	1		
NURE Seds[e]	DSOO068S1			460	1											30	1		
NURE Seds[e]	DSOO069S1			750	1											60	1		
NURE Seds[e]	DSOO071S1			520	1											80	1		
NURE Seds[e]	DSOO072S1			790	1											90	1		
NURE Seds[e]	DSOO074S1			400	1											50	1		
NURE Seds[e]	DSOO075S1			670	1											50	1		
NURE Seds[e]	DSOO076S1			390	1											80	1		
NURE Seds[e]	DSOO078S1			800	1											50	1		
NURE Seds[e]	DSOO079S1			660	1											80	1		
NURE Seds[e]	DSOO080S1			420	1											40	1		
NURE Seds[e]	DSOO081S1			320	1											40	1		
NURE Seds[e]	DSOO082S1			460	1											70	1		
NURE Seds[e]	DSOO083S1			480	1											40	1		
NURE Seds[e]	DSOO084S1			750	1											60	1		
NURE Seds[e]	DSOO085S1			860	1											90	1		
NURE Seds[e]	DSOO087S1			530	1											80	1		
NURE Seds[e]	DSOO088S1			570	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO089S1	53100	1																	29000	1
NURE Seds[e]	DSOO090S1	46200	1																	16600	1
NURE Seds[e]	DSOO091S1	55900	1																	26200	1
NURE Seds[e]	DSOO092S1	57900	1																	32200	1
NURE Seds[e]	DSOO093S1	53700	1																	25900	1
NURE Seds[e]	DSOO094S1	47300	1																	23800	1
NURE Seds[e]	DSOO095S1	54500	1																	22000	1
NURE Seds[e]	DSOO096S1	48500	1																	25800	1
NURE Seds[e]	DSOO097S1	500	0																	24100	1
NURE Seds[e]	DSOO098S1	44300	1																	17600	1
NURE Seds[e]	DSOO099S1	24100	1																	9800	1
NURE Seds[e]	DSOO100S1	51400	1																	27800	1
NURE Seds[e]	DSOO101S1	53600	1																	25200	1
NURE Seds[e]	DSOO103S1	56000	1																	26000	1
NURE Seds[e]	DSOO105S1	54000	1																	27500	1
NURE Seds[e]	DSOO106S1	54000	1																	29600	1
NURE Seds[e]	DSOO107S1	39900	1																	24800	1
NURE Seds[e]	DSOO108S1	51800	1																	24600	1
NURE Seds[e]	DSOO109S1	49700	1																	24400	1
NURE Seds[e]	DSOO110S1	47200	1																	23500	1
NURE Seds[e]	DSOO111S1	55300	1																	24100	1
NURE Seds[e]	DSOO112S1	52800	1																	25000	1
NURE Seds[e]	DSOO114S1	53300	1																	18400	1
NURE Seds[e]	DSOO115S1	55600	1																	22600	1
NURE Seds[e]	DSOO116S1	52800	1																	23800	1
NURE Seds[e]	DSOO118S1	52700	1																	27900	1
NURE Seds[e]	DSOO119S1	60000	1																	31100	1
NURE Seds[e]	DSOO120S1	54500	1																	25700	1
NURE Seds[e]	DSOO121S1	50100	1																	49500	1
NURE Seds[e]	DSOO123S1	51800	1																	20000	1
NURE Seds[e]	DSOO124S1	45200	1																	16900	1
NURE Seds[e]	DSOO125S1	48100	1																	19000	1
NURE Seds[e]	DSOO126S1	51800	1																	22100	1
NURE Seds[e]	DSOO127S1	52600	1																	27700	1
NURE Seds[e]	DSOO128S1	55800	1																	25800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO089S1			820	1											110	1		
NURE Seds[e]	DSOO090S1			490	1											40	1		
NURE Seds[e]	DSOO091S1			670	1											90	1		
NURE Seds[e]	DSOO092S1			700	1											90	1		
NURE Seds[e]	DSOO093S1			580	1											50	1		
NURE Seds[e]	DSOO094S1			600	1											50	1		
NURE Seds[e]	DSOO095S1			420	1											60	1		
NURE Seds[e]	DSOO096S1			570	1											80	1		
NURE Seds[e]	DSOO097S1			20	0														
NURE Seds[e]	DSOO098S1			450	1											40	1		
NURE Seds[e]	DSOO099S1			890	1											30	1		
NURE Seds[e]	DSOO100S1			680	1											70	1		
NURE Seds[e]	DSOO101S1			430	1											40	1		
NURE Seds[e]	DSOO103S1			650	1											100	1		
NURE Seds[e]	DSOO105S1			680	1											90	1		
NURE Seds[e]	DSOO106S1			610	1											90	1		
NURE Seds[e]	DSOO107S1			700	1											60	1		
NURE Seds[e]	DSOO108S1			590	1											60	1		
NURE Seds[e]	DSOO109S1			980	1											50	1		
NURE Seds[e]	DSOO110S1			1340	1											30	1		
NURE Seds[e]	DSOO111S1			430	1											50	1		
NURE Seds[e]	DSOO112S1			620	1											50	1		
NURE Seds[e]	DSOO114S1			910	1											30	1		
NURE Seds[e]	DSOO115S1			540	1											60	1		
NURE Seds[e]	DSOO116S1			500	1											50	1		
NURE Seds[e]	DSOO118S1			460	1											60	1		
NURE Seds[e]	DSOO119S1			610	1											50	1		
NURE Seds[e]	DSOO120S1			450	1											80	1		
NURE Seds[e]	DSOO121S1			740	1											150	1		
NURE Seds[e]	DSOO123S1			670	1											40	1		
NURE Seds[e]	DSOO124S1			500	1											30	1		
NURE Seds[e]	DSOO125S1			890	1											50	1		
NURE Seds[e]	DSOO126S1			410	1											30	1		
NURE Seds[e]	DSOO127S1			450	1											60	1		
NURE Seds[e]	DSOO128S1			860	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO129S1	58500	1																	30300	1
NURE Seds[e]	DSOO130S1	50100	1																	25800	1
NURE Seds[e]	DSOO133S1	59900	1																	27800	1
NURE Seds[e]	DSOO134S1	46400	1																	28700	1
NURE Seds[e]	DSOO135S1	63800	1																	33300	1
NURE Seds[e]	DSOO136S1	52000	1																	26100	1
NURE Seds[e]	DSOO137S1	57600	1																	23700	1
NURE Seds[e]	DSOO138S1	51900	1																	21500	1
NURE Seds[e]	DSOO139S1	53200	1																	22100	1
NURE Seds[e]	DSOO140S1	48000	1																	20500	1
NURE Seds[e]	DSOO141S1	34400	1																	28900	1
NURE Seds[e]	DSOO142S1	46500	1																	39300	1
NURE Seds[e]	DSOO143S1	53700	1																	30600	1
NURE Seds[e]	DSOO144S1	51700	1																	30100	1
NURE Seds[e]	DSOO145S1	51300	1																	31000	1
NURE Seds[e]	DSOO146S1	42200	1																	16000	1
NURE Seds[e]	DSOO148S1	52600	1																	27100	1
NURE Seds[e]	DSOO149S1	32300	1																	15900	1
NURE Seds[e]	DSOO150S1	55300	1																	32100	1
NURE Seds[e]	DSOO151S1	8200	1																	3600	1
NURE Seds[e]	DSOO152S1	57000	1																	35500	1
NURE Seds[e]	DSOO153S1	58800	1																	23300	1
NURE Seds[e]	DSOO154S1	32400	1																	45500	1
NURE Seds[e]	DSOO158S1	48400	1																	35100	1
NURE Seds[e]	DSOO160S1	44900	1																	17900	1
NURE Seds[e]	DSOO163S1	54100	1																	24200	1
NURE Seds[e]	DSOO164S1	43600	1																	31700	1
NURE Seds[e]	DSOO165S1	52800	1																	29900	1
NURE Seds[e]	DSOO166S1	37400	1																	16600	1
NURE Seds[e]	DSOO167S1	52800	1																	36600	1
NURE Seds[e]	DSOO168S1	59300	1																	35900	1
NURE Seds[e]	DSOO170S1	44600	1																	27500	1
NURE Seds[e]	DSOO171S1	53900	1																	30500	1
NURE Seds[e]	DSOO172S1	50600	1																	40600	1
NURE Seds[e]	DSOO173S1	60100	1																	27000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO129S1			590	1											60	1		
NURE Seds[e]	DSOO130S1			1570	1											10	0		
NURE Seds[e]	DSOO133S1			710	1											80	1		
NURE Seds[e]	DSOO134S1			770	1											60	1		
NURE Seds[e]	DSOO135S1			580	1											110	1		
NURE Seds[e]	DSOO136S1			390	1											50	1		
NURE Seds[e]	DSOO137S1			500	1											80	1		
NURE Seds[e]	DSOO138S1			710	1											50	1		
NURE Seds[e]	DSOO139S1			520	1											70	1		
NURE Seds[e]	DSOO140S1			250	1											30	1		
NURE Seds[e]	DSOO141S1			510	1											60	1		
NURE Seds[e]	DSOO142S1			570	1											110	1		
NURE Seds[e]	DSOO143S1			2010	1											40	1		
NURE Seds[e]	DSOO144S1			560	1											60	1		
NURE Seds[e]	DSOO145S1			830	1											80	1		
NURE Seds[e]	DSOO146S1			380	1											30	1		
NURE Seds[e]	DSOO148S1			690	1											60	1		
NURE Seds[e]	DSOO149S1			590	1											40	1		
NURE Seds[e]	DSOO150S1			530	1											70	1		
NURE Seds[e]	DSOO151S1			100	1											10	1		
NURE Seds[e]	DSOO152S1			440	1											100	1		
NURE Seds[e]	DSOO153S1			850	1											50	1		
NURE Seds[e]	DSOO154S1			1360	1											40	1		
NURE Seds[e]	DSOO158S1			1020	1											80	1		
NURE Seds[e]	DSOO160S1			530	1											20	1		
NURE Seds[e]	DSOO163S1			1170	1											40	1		
NURE Seds[e]	DSOO164S1			530	1											80	1		
NURE Seds[e]	DSOO165S1			810	1											70	1		
NURE Seds[e]	DSOO166S1			410	1											50	1		
NURE Seds[e]	DSOO167S1			790	1											130	1		
NURE Seds[e]	DSOO168S1			660	1											70	1		
NURE Seds[e]	DSOO170S1			510	1											50	1		
NURE Seds[e]	DSOO171S1			520	1											80	1		
NURE Seds[e]	DSOO172S1			820	1											140	1		
NURE Seds[e]	DSOO173S1			770	1											90	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO174S1	55200	1																	30000	1
NURE Seds[e]	DSOP002S1	55700	1																	54000	1
NURE Seds[e]	DSOP003S1	48900	1																	32800	1
NURE Seds[e]	DSOP004S1	41700	1																	22100	1
NURE Seds[e]	DSOP006S1	56600	1																	24900	1
NURE Seds[e]	DSOP008S1	40900	1																	17800	1
NURE Seds[e]	DSOP010S1	59700	1																	45300	1
NURE Seds[e]	DSOP011S1	64500	1																	30400	1
NURE Seds[e]	DSOP012S1	59200	1																	39100	1
NURE Seds[e]	DSOP013S1	62100	1																	30000	1
NURE Seds[e]	DSOP014S1	59600	1																	31500	1
NURE Seds[e]	DSOP015S1	55100	1																	23800	1
NURE Seds[e]	DSOP016S1	55800	1																	40000	1
NURE Seds[e]	DSOP017S1	61500	1																	47700	1
NURE Seds[e]	DSOP018S1	56200	1																	28600	1
NURE Seds[e]	DSOP019S1	56200	1																	33700	1
NURE Seds[e]	DSOP020S1	52700	1																	30100	1
NURE Seds[e]	DSOP022S1	51700	1																	28800	1
NURE Seds[e]	DSOP024S1	59500	1																	25000	1
NURE Seds[e]	DSOP025S1	57200	1																	30400	1
NURE Seds[e]	DSOP027S1	49100	1																	27100	1
NURE Seds[e]	DSOP028S1	62300	1																	25800	1
NURE Seds[e]	DSOP030S1	54400	1																	27100	1
NURE Seds[e]	DSOP033S1	42500	1																	26900	1
NURE Seds[e]	DSOP035S1	29200	1																	12600	1
NURE Seds[e]	DSOP036S1	58700	1																	49200	1
NURE Seds[e]	DSOP037S1	50700	1																	25000	1
NURE Seds[e]	DSOP040S1	60600	1																	27800	1
NURE Seds[e]	DSOP041S1	56700	1																	20800	1
NURE Seds[e]	DSOP042S1	62000	1																	22400	1
NURE Seds[e]	DSOP043S1	52800	1																	24700	1
NURE Seds[e]	DSOP044S1	64100	1																	28600	1
NURE Seds[e]	DSOP047S1	56500	1																	26500	1
NURE Seds[e]	DSOP048S1	64100	1																	36000	1
NURE Seds[e]	DSOP049S1	53600	1																	22800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO174S1			650	1											70	1		
NURE Seds[e]	DSOP002S1			1530	1											160	1		
NURE Seds[e]	DSOP003S1			580	1											40	1		
NURE Seds[e]	DSOP004S1			670	1											70	1		
NURE Seds[e]	DSOP006S1			270	1											60	1		
NURE Seds[e]	DSOP008S1			750	1											30	1		
NURE Seds[e]	DSOP010S1			860	1											150	1		
NURE Seds[e]	DSOP011S1			410	1											70	1		
NURE Seds[e]	DSOP012S1			960	1											110	1		
NURE Seds[e]	DSOP013S1			970	1											70	1		
NURE Seds[e]	DSOP014S1			1240	1											40	1		
NURE Seds[e]	DSOP015S1			910	1											70	1		
NURE Seds[e]	DSOP016S1			710	1											90	1		
NURE Seds[e]	DSOP017S1			930	1											170	1		
NURE Seds[e]	DSOP018S1			590	1											50	1		
NURE Seds[e]	DSOP019S1			610	1											70	1		
NURE Seds[e]	DSOP020S1			960	1											100	1		
NURE Seds[e]	DSOP022S1			500	1											100	1		
NURE Seds[e]	DSOP024S1			610	1											70	1		
NURE Seds[e]	DSOP025S1			650	1											70	1		
NURE Seds[e]	DSOP027S1			680	1											50	1		
NURE Seds[e]	DSOP028S1			720	1											80	1		
NURE Seds[e]	DSOP030S1			540	1											60	1		
NURE Seds[e]	DSOP033S1			520	1											60	1		
NURE Seds[e]	DSOP035S1			370	1											20	1		
NURE Seds[e]	DSOP036S1			1290	1											130	1		
NURE Seds[e]	DSOP037S1			540	1											70	1		
NURE Seds[e]	DSOP040S1			310	1											70	1		
NURE Seds[e]	DSOP041S1			370	1											100	1		
NURE Seds[e]	DSOP042S1			290	1											50	1		
NURE Seds[e]	DSOP043S1			1230	1											50	1		
NURE Seds[e]	DSOP044S1			850	1											60	1		
NURE Seds[e]	DSOP047S1			380	1											80	1		
NURE Seds[e]	DSOP048S1			510	1											70	1		
NURE Seds[e]	DSOP049S1			370	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP050S1	49200	1																	19400	1
NURE Seds[e]	DSOP052S1	48800	1																	27400	1
NURE Seds[e]	DSOP054S1	52600	1																	21800	1
NURE Seds[e]	DSOP055S1	51100	1																	26200	1
NURE Seds[e]	DSOP056S1	48200	1																	17200	1
NURE Seds[e]	DSOP057S1	60900	1																	33400	1
NURE Seds[e]	DSOP059S1	52900	1																	29800	1
NURE Seds[e]	DSOP060S1	46600	1																	25300	1
NURE Seds[e]	DSOP061S1	66000	1																	33800	1
NURE Seds[e]	DSOP064S1	59500	1																	31200	1
NURE Seds[e]	DSOP065S1	52700	1																	26600	1
NURE Seds[e]	DSOP066S1	51100	1																	35200	1
NURE Seds[e]	DSOP067S1	40900	1																	15100	1
NURE Seds[e]	DSOP068S1	62000	1																	27300	1
NURE Seds[e]	DSOP069S1	54200	1																	23200	1
NURE Seds[e]	DSOP070S1	39100	1																	19700	1
NURE Seds[e]	DSOP071S1	54500	1																	32100	1
NURE Seds[e]	DSOP072S1	54700	1																	36500	1
NURE Seds[e]	DSOP074S1	51900	1																	68700	1
NURE Seds[e]	DSOP076S1	55000	1																	49800	1
NURE Seds[e]	DSOP077S1	58900	1																	45400	1
NURE Seds[e]	DSOP078S1	62600	1																	54000	1
NURE Seds[e]	DSOP079S1	60700	1																	32800	1
NURE Seds[e]	DSOP080S1	76100	1																	30400	1
NURE Seds[e]	DSOP081S1	54500	1																	33300	1
NURE Seds[e]	DSOP082S1	58800	1																	28500	1
NURE Seds[e]	DSOP084S1	54100	1																	23800	1
NURE Seds[e]	DSOP085S1	61500	1																	25400	1
NURE Seds[e]	DSOP086S1	56800	1																	30300	1
NURE Seds[e]	DSOP087S1	61600	1																	42300	1
NURE Seds[e]	DSOP090S1	60100	1																	47600	1
NURE Seds[e]	DSOP091S1	67600	1																	48400	1
NURE Seds[e]	DSOP092S1	65000	1																	43600	1
NURE Seds[e]	DSOP093S1	63100	1																	46700	1
NURE Seds[e]	DSOP094S1	67500	1																	46200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP050S1			320	1											50	1		
NURE Seds[e]	DSOP052S1			690	1											70	1		
NURE Seds[e]	DSOP054S1			510	1											50	1		
NURE Seds[e]	DSOP055S1			680	1											70	1		
NURE Seds[e]	DSOP056S1			380	1											40	1		
NURE Seds[e]	DSOP057S1			680	1											80	1		
NURE Seds[e]	DSOP059S1			680	1											90	1		
NURE Seds[e]	DSOP060S1			640	1											80	1		
NURE Seds[e]	DSOP061S1			590	1											90	1		
NURE Seds[e]	DSOP064S1			560	1											100	1		
NURE Seds[e]	DSOP065S1			660	1											70	1		
NURE Seds[e]	DSOP066S1			640	1											80	1		
NURE Seds[e]	DSOP067S1			320	1											40	1		
NURE Seds[e]	DSOP068S1			540	1											80	1		
NURE Seds[e]	DSOP069S1			660	1											70	1		
NURE Seds[e]	DSOP070S1			440	1											50	1		
NURE Seds[e]	DSOP071S1			610	1											130	1		
NURE Seds[e]	DSOP072S1			750	1											130	1		
NURE Seds[e]	DSOP074S1			1150	1											320	1		
NURE Seds[e]	DSOP076S1			550	1											120	1		
NURE Seds[e]	DSOP077S1			610	1											100	1		
NURE Seds[e]	DSOP078S1			800	1											150	1		
NURE Seds[e]	DSOP079S1			700	1											90	1		
NURE Seds[e]	DSOP080S1			930	1											90	1		
NURE Seds[e]	DSOP081S1			700	1											100	1		
NURE Seds[e]	DSOP082S1			660	1											100	1		
NURE Seds[e]	DSOP084S1			670	1											70	1		
NURE Seds[e]	DSOP085S1			510	1											60	1		
NURE Seds[e]	DSOP086S1			770	1											70	1		
NURE Seds[e]	DSOP087S1			780	1											100	1		
NURE Seds[e]	DSOP090S1			850	1											170	1		
NURE Seds[e]	DSOP091S1			710	1											90	1		
NURE Seds[e]	DSOP092S1			840	1											130	1		
NURE Seds[e]	DSOP093S1			820	1											100	1		
NURE Seds[e]	DSOP094S1			720	1											110	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP095S1	61800	1																	37300	1
NURE Seds[e]	DSOP096S1	61400	1																	47400	1
NURE Seds[e]	DSOP097S1	51900	1																	26000	1
NURE Seds[e]	DSOP098S1	57600	1																	34200	1
NURE Seds[e]	DSOP099S1	56400	1																	25900	1
NURE Seds[e]	DSOP100S1	64400	1																	30700	1
NURE Seds[e]	DSOP102S1	57200	1																	34100	1
NURE Seds[e]	DSOP103S1	60300	1																	28600	1
NURE Seds[e]	DSOP104S1	61600	1																	30800	1
NURE Seds[e]	DSOP106S1	61600	1																	39000	1
NURE Seds[e]	DSOP107S1	58800	1																	39400	1
NURE Seds[e]	DSOP108S1	62500	1																	32500	1
NURE Seds[e]	DSOP109S1	72500	1																	40400	1
NURE Seds[e]	DSOP111S1	52900	1																	72500	1
NURE Seds[e]	DSOP112S1	58300	1																	32100	1
NURE Seds[e]	DSOP113S1	62300	1																	34300	1
NURE Seds[e]	DSOP115S1	59800	1																	33400	1
NURE Seds[e]	DSOP116S1	67400	1																	36900	1
NURE Seds[e]	DSOP117S1	60400	1																	37000	1
NURE Seds[e]	DSOP118S1	64000	1																	37300	1
NURE Seds[e]	DSOP119S1	57500	1																	37100	1
NURE Seds[e]	DSOP120S1	58100	1																	39800	1
NURE Seds[e]	DSOP121S1	59000	1																	30800	1
NURE Seds[e]	DSOP122S1	50300	1																	33500	1
NURE Seds[e]	DSOP124S1	57100	1																	27000	1
NURE Seds[e]	DSOP125S1	61900	1																	28600	1
NURE Seds[e]	DSOP126S1	56600	1																	26000	1
NURE Seds[e]	DSOP127S1	63600	1																	34800	1
NURE Seds[e]	DSOP128S1	61700	1																	28700	1
NURE Seds[e]	DSOP129S1	48900	1																	62900	1
NURE Seds[e]	DSOP132S1	55900	1																	38600	1
NURE Seds[e]	DSOP133S1	67900	1																	33000	1
NURE Seds[e]	DSOP135S1	56000	1																	31900	1
NURE Seds[e]	DSOP136S1	64800	1																	51400	1
NURE Seds[e]	DSOP137S1	62000	1																	49500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP095S1			660	1											100	1		
NURE Seds[e]	DSOP096S1			720	1											100	1		
NURE Seds[e]	DSOP097S1			780	1											60	1		
NURE Seds[e]	DSOP098S1			1020	1											100	1		
NURE Seds[e]	DSOP099S1			720	1											60	1		
NURE Seds[e]	DSOP100S1			470	1											70	1		
NURE Seds[e]	DSOP102S1			590	1											100	1		
NURE Seds[e]	DSOP103S1			800	1											80	1		
NURE Seds[e]	DSOP104S1			590	1											70	1		
NURE Seds[e]	DSOP106S1			680	1											110	1		
NURE Seds[e]	DSOP107S1			770	1											70	1		
NURE Seds[e]	DSOP108S1			610	1											80	1		
NURE Seds[e]	DSOP109S1			570	1											110	1		
NURE Seds[e]	DSOP111S1			960	1											190	1		
NURE Seds[e]	DSOP112S1			680	1											60	1		
NURE Seds[e]	DSOP113S1			20	0											50	1		
NURE Seds[e]	DSOP115S1			610	1											60	1		
NURE Seds[e]	DSOP116S1			390	1											70	1		
NURE Seds[e]	DSOP117S1			830	1											10	0		
NURE Seds[e]	DSOP118S1			940	1											80	1		
NURE Seds[e]	DSOP119S1			520	1											60	1		
NURE Seds[e]	DSOP120S1			610	1											100	1		
NURE Seds[e]	DSOP121S1			1150	1											80	1		
NURE Seds[e]	DSOP122S1			820	1											90	1		
NURE Seds[e]	DSOP124S1			1040	1														
NURE Seds[e]	DSOP125S1			500	1											90	1		
NURE Seds[e]	DSOP126S1			810	1											40	1		
NURE Seds[e]	DSOP127S1			600	1											10	0		
NURE Seds[e]	DSOP128S1			800	1											50	1		
NURE Seds[e]	DSOP129S1			970	1											110	1		
NURE Seds[e]	DSOP132S1			1040	1											70	1		
NURE Seds[e]	DSOP133S1			1090	1											120	1		
NURE Seds[e]	DSOP135S1			750	1											70	1		
NURE Seds[e]	DSOP136S1			1130	1											150	1		
NURE Seds[e]	DSOP137S1			1220	1											110	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP138S1	43300	1																	18700	1
NURE Seds[e]	DSOP139S1	62000	1																	41000	1
NURE Seds[e]	DSOP140S1	55700	1																	32700	1
NURE Seds[e]	DSOP141S1	59400	1																	32700	1
NURE Seds[e]	DSOP142S1	63800	1																	28400	1
NURE Seds[e]	DSOP143S1	62900	1																	26300	1
NURE Seds[e]	DSOP144S1	68000	1																	38500	1
NURE Seds[e]	DSOP145S1	73000	1																	33200	1
NURE Seds[e]	DSOP146S1	65500	1																	46200	1
NURE Seds[e]	DSOP147S1	65400	1																	34900	1
NURE Seds[e]	DSOP148S1	66300	1																	43100	1
NURE Seds[e]	DSOP149S1	64600	1																	40100	1
NURE Seds[e]	DSOP150S1	59400	1																	67400	1
NURE Seds[e]	DSOP151S1	68500	1																	38700	1
NURE Seds[e]	DSOP152S1	62000	1																	32800	1
NURE Seds[e]	DSOP153S1	62100	1																	27300	1
NURE Seds[e]	DSOP154S1	65200	1																	27000	1
NURE Seds[e]	DSOP155S1	59300	1																	26600	1
NURE Seds[e]	DSOP156S1	67500	1																	31100	1
NURE Seds[e]	DSOP157S1	55000	1																	30000	1
NURE Seds[e]	DSOP158S1	51900	1																	35900	1
NURE Seds[e]	DSOP159S1	62200	1																	34600	1
NURE Seds[e]	DSOP160S1	60500	1																	30000	1
NURE Seds[e]	DSOP161S1	61600	1																	48500	1
NURE Seds[e]	DSOP162S1	60500	1																	25900	1
NURE Seds[e]	DSOP166S1	58300	1																	22200	1
NURE Seds[e]	DSOP167S1	65600	1																	35500	1
NURE Seds[e]	DSOP168S1	63600	1																	22900	1
NURE Seds[e]	DSOP169S1	59900	1																	29400	1
NURE Seds[e]	DSOP170S1	58700	1																	27200	1
NURE Seds[e]	DSOP172S1	60400	1																	45400	1
NURE Seds[e]	DSOP173S1	56800	1																	47900	1
NURE Seds[e]	DSOP174S1	46700	1																	33200	1
NURE Seds[e]	DSOP175S1	54000	1																	20200	1
NURE Seds[e]	DSOP176S1	61800	1																	38000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP138S1			500	1											70	1		
NURE Seds[e]	DSOP139S1			530	1											20	1		
NURE Seds[e]	DSOP140S1			1260	1											50	1		
NURE Seds[e]	DSOP141S1			1040	1											60	1		
NURE Seds[e]	DSOP142S1			630	1											90	1		
NURE Seds[e]	DSOP143S1			1870	1											50	1		
NURE Seds[e]	DSOP144S1			880	1											50	1		
NURE Seds[e]	DSOP145S1			830	1											50	1		
NURE Seds[e]	DSOP146S1			430	1											130	1		
NURE Seds[e]	DSOP147S1			1660	1											60	1		
NURE Seds[e]	DSOP148S1			810	1											50	1		
NURE Seds[e]	DSOP149S1			1140	1											120	1		
NURE Seds[e]	DSOP150S1			1340	1											120	1		
NURE Seds[e]	DSOP151S1			880	1											50	1		
NURE Seds[e]	DSOP152S1			1120	1											60	1		
NURE Seds[e]	DSOP153S1			720	1											10	0		
NURE Seds[e]	DSOP154S1			1000	1											50	1		
NURE Seds[e]	DSOP155S1			710	1											50	1		
NURE Seds[e]	DSOP156S1			530	1											30	1		
NURE Seds[e]	DSOP157S1			1030	1											40	1		
NURE Seds[e]	DSOP158S1			2370	1											90	1		
NURE Seds[e]	DSOP159S1			1150	1											90	1		
NURE Seds[e]	DSOP160S1			1400	1											60	1		
NURE Seds[e]	DSOP161S1			980	1											70	1		
NURE Seds[e]	DSOP162S1			930	1											10	0		
NURE Seds[e]	DSOP166S1			1040	1											60	1		
NURE Seds[e]	DSOP167S1			690	1											50	1		
NURE Seds[e]	DSOP168S1			670	1											60	1		
NURE Seds[e]	DSOP169S1			1000	1											20	1		
NURE Seds[e]	DSOP170S1			980	1											40	1		
NURE Seds[e]	DSOP172S1			1120	1											10	0		
NURE Seds[e]	DSOP173S1			810	1											80	1		
NURE Seds[e]	DSOP174S1			1320	1											60	1		
NURE Seds[e]	DSOP175S1			610	1											90	1		
NURE Seds[e]	DSOP176S1			20	0											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP179S1	57300	1																	52200	1
NURE Seds[e]	DSOP180S1	53700	1																	34300	1
NURE Seds[e]	DSOP182S1	58700	1																	33600	1
NURE Seds[e]	DSOP183S1	56600	1																	24900	1
NURE Seds[e]	DSOP186S1	61500	1																	43700	1
NURE Seds[e]	DSOP188S1	64700	1																	21600	1
NURE Seds[e]	DSOP189S1	52300	1																	39800	1
NURE Seds[e]	DSOP192S1	55100	1																	23500	1
NURE Seds[e]	DSOP193S1	58400	1																	29000	1
NURE Seds[e]	DSOP194S1	60200	1																	37100	1
NURE Seds[e]	DSOP195S1	49600	1																	21200	1
NURE Seds[e]	DSOP196S1	45500	1																	28700	1
NURE Seds[e]	DSOP197S1	50300	1																	29400	1
NURE Seds[e]	DSOP198S1	57800	1																	35400	1
NURE Seds[e]	DSOP199S1	48300	1																	21800	1
NURE Seds[e]	DSOP200S1	54100	1																	83700	1
NURE Seds[e]	DSOP202S1	58300	1																	30400	1
NURE Seds[e]	DSOP203S1	58000	1																	26100	1
NURE Seds[e]	DSOP204S1	57000	1																	34600	1
NURE Seds[e]	DSOP206S1	62500	1																	32200	1
NURE Seds[e]	DSOP207S1	52800	1																	37600	1
NURE Seds[e]	DSOP211S1	56000	1																	43000	1
NURE Seds[e]	DSOP212S1	58500	1																	41800	1
NURE Seds[e]	DSOP213S1	58400	1																	40300	1
NURE Seds[e]	DSOP214S1	58600	1																	39500	1
NURE Seds[e]	DSOP215S1	66500	1																	40300	1
NURE Seds[e]	DSOP216S1	56400	1																	32300	1
NURE Seds[e]	DSOP217S1	56600	1																	35200	1
NURE Seds[e]	DSOP218S1	56100	1																	30000	1
NURE Seds[e]	DSOP219S1	52700	1																	34100	1
NURE Seds[e]	DSOP220S1	62200	1																	29900	1
NURE Seds[e]	DSOP221S1	55700	1																	22000	1
NURE Seds[e]	DSOP222S1	55600	1																	35100	1
NURE Seds[e]	DSOP223S1	59800	1																	34400	1
NURE Seds[e]	DSOP224S1	61000	1																	55800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP179S1			760	1											40	1		
NURE Seds[e]	DSOP180S1			850	1											70	1		
NURE Seds[e]	DSOP182S1			1090	1											10	0		
NURE Seds[e]	DSOP183S1			1140	1											70	1		
NURE Seds[e]	DSOP186S1			700	1											70	1		
NURE Seds[e]	DSOP188S1			910	1											10	0		
NURE Seds[e]	DSOP189S1			900	1											150	1		
NURE Seds[e]	DSOP192S1			680	1											30	1		
NURE Seds[e]	DSOP193S1			670	1											80	1		
NURE Seds[e]	DSOP194S1			1180	1											120	1		
NURE Seds[e]	DSOP195S1			600	1											30	1		
NURE Seds[e]	DSOP196S1			1220	1											20	1		
NURE Seds[e]	DSOP197S1			880	1											20	1		
NURE Seds[e]	DSOP198S1			400	1											30	1		
NURE Seds[e]	DSOP199S1			980	1											40	1		
NURE Seds[e]	DSOP200S1			940	1											50	1		
NURE Seds[e]	DSOP202S1			20	0											70	1		
NURE Seds[e]	DSOP203S1			540	1											10	0		
NURE Seds[e]	DSOP204S1			710	1											10	0		
NURE Seds[e]	DSOP206S1			550	1											70	1		
NURE Seds[e]	DSOP207S1			20	0											80	1		
NURE Seds[e]	DSOP211S1			760	1											20	1		
NURE Seds[e]	DSOP212S1			390	1											110	1		
NURE Seds[e]	DSOP213S1			450	1											10	0		
NURE Seds[e]	DSOP214S1			870	1											40	1		
NURE Seds[e]	DSOP215S1			660	1											40	1		
NURE Seds[e]	DSOP216S1			310	1											10	0		
NURE Seds[e]	DSOP217S1			280	1											110	1		
NURE Seds[e]	DSOP218S1			870	1											130	1		
NURE Seds[e]	DSOP219S1			170	1											10	0		
NURE Seds[e]	DSOP220S1			330	1											40	1		
NURE Seds[e]	DSOP221S1			140	1											50	1		
NURE Seds[e]	DSOP222S1			20	0											40	1		
NURE Seds[e]	DSOP223S1			20	0											10	0		
NURE Seds[e]	DSOP224S1			760	1											160	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP225S1	59300	1																	59700	1
NURE Seds[e]	DSOP226S1	68700	1																	55500	1
NURE Seds[e]	DSOP227S1	59200	1																	27600	1
NURE Seds[e]	DSOP228S1	61900	1																	40800	1
NURE Seds[e]	DSOP229S1	58400	1																	65300	1
NURE Seds[e]	DSOP230S1	56200	1																	44800	1
NURE Seds[e]	DSOP232S1	57400	1																	49800	1
NURE Seds[e]	DSOP233S1	56700	1																	26700	1
NURE Seds[e]	DSOP237S1	58900	1																	36800	1
NURE Seds[e]	DSOP238S1	53800	1																	37700	1
NURE Seds[e]	DSOP239S1	52700	1																	40400	1
NURE Seds[e]	DSOP240S1	62800	1																	28500	1
NURE Seds[e]	DSOP241S1	52900	1																	24300	1
NURE Seds[e]	DSOP242S1	16800	1																	7000	1
NURE Seds[e]	DSOP243S1	500	0																	25800	1
NURE Seds[e]	DSOP245S1	47400	1																	21500	1
NURE Seds[e]	DSOP246S1	57500	1																	33600	1
NURE Seds[e]	DSOP249S1	500	0																	26300	1
NURE Seds[e]	DSOP250S1	500	0																	27000	1
NURE Seds[e]	DSOP251S1	43600	1																	20400	1
NURE Seds[e]	DSOP252S1	61100	1																	33500	1
NURE Seds[e]	DSOP253S1	60800	1																	31400	1
NURE Seds[e]	DSOP254S1	57900	1																	49000	1
NURE Seds[e]	DSOP256S1	57600	1																	40200	1
NURE Seds[e]	DSOP257S1	53000	1																	32200	1
NURE Seds[e]	DSOP259S1	56900	1																	25100	1
NURE Seds[e]	DSOP260S1	57700	1																	26100	1
NURE Seds[e]	DSOP261S1	61000	1																	38800	1
NURE Seds[e]	DSOP262S1	59200	1																	30600	1
NURE Seds[e]	DSOP263S1	59900	1																	26100	1
NURE Seds[e]	DSOP265S1	60100	1																	31400	1
NURE Seds[e]	DSOP267S1	52800	1																	38200	1
NURE Seds[e]	DSOP268S1	56800	1																	31400	1
NURE Seds[e]	DSOP269S1	62900	1																	36100	1
NURE Seds[e]	DSOP270S1	62100	1																	60000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP225S1			560	1											50	1		
NURE Seds[e]	DSOP226S1			680	1											10	0		
NURE Seds[e]	DSOP227S1			180	1											10	0		
NURE Seds[e]	DSOP228S1			420	1											30	1		
NURE Seds[e]	DSOP229S1			710	1											50	1		
NURE Seds[e]	DSOP230S1			670	1											10	0		
NURE Seds[e]	DSOP232S1			740	1											40	1		
NURE Seds[e]	DSOP233S1			440	1											50	1		
NURE Seds[e]	DSOP237S1			710	1											20	1		
NURE Seds[e]	DSOP238S1			400	1											60	1		
NURE Seds[e]	DSOP239S1			690	1											50	1		
NURE Seds[e]	DSOP240S1			340	1											10	0		
NURE Seds[e]	DSOP241S1			480	1											20	1		
NURE Seds[e]	DSOP242S1			120	1											50	1		
NURE Seds[e]	DSOP243S1			350	1											10	0		
NURE Seds[e]	DSOP245S1			450	1											30	1		
NURE Seds[e]	DSOP246S1			310	1											30	1		
NURE Seds[e]	DSOP249S1			340	1											10	0		
NURE Seds[e]	DSOP250S1			350	1											10	0		
NURE Seds[e]	DSOP251S1			560	1											10	0		
NURE Seds[e]	DSOP252S1			520	1											110	1		
NURE Seds[e]	DSOP253S1			600	1											20	1		
NURE Seds[e]	DSOP254S1			820	1											130	1		
NURE Seds[e]	DSOP256S1			1200	1											130	1		
NURE Seds[e]	DSOP257S1			1360	1											90	1		
NURE Seds[e]	DSOP259S1			1120	1											40	1		
NURE Seds[e]	DSOP260S1			1020	1											50	1		
NURE Seds[e]	DSOP261S1			1700	1											40	1		
NURE Seds[e]	DSOP262S1			870	1											30	1		
NURE Seds[e]	DSOP263S1			820	1											10	0		
NURE Seds[e]	DSOP265S1			1210	1											20	1		
NURE Seds[e]	DSOP267S1			1270	1											40	1		
NURE Seds[e]	DSOP268S1			1090	1											50	1		
NURE Seds[e]	DSOP269S1			1130	1											90	1		
NURE Seds[e]	DSOP270S1			1330	1											90	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP271S1	54200	1																	26900	1
NURE Seds[e]	DSOP272S1	62200	1																	45800	1
NURE Seds[e]	DSOP274S1	73500	1																	41400	1
NURE Seds[e]	DSOP276S1	67200	1																	22700	1
NURE Seds[e]	DSOP277S1	69500	1																	26100	1
NURE Seds[e]	DSOP278S1	67600	1																	24400	1
NURE Seds[e]	DSOP279S1	49700	1																		
NURE Seds[e]	DSOP280S1	75600	1																	44000	1
NURE Seds[e]	DSOP281S1	56100	1																	34300	1
NURE Seds[e]	DSOP282S1	59700	1																	25400	1
NURE Seds[e]	DSOP283S1	73700	1																	36800	1
NURE Seds[e]	DSOP284S1	71100	1																	50100	1
NURE Seds[e]	DSOP285S1	58400	1																	27900	1
NURE Seds[e]	DSOP286S1	63900	1																	22200	1
NURE Seds[e]	DSOP287S1	69600	1																	36600	1
NURE Seds[e]	DSOP288S1	74700	1																	54400	1
NURE Seds[e]	DSOP289S1	68700	1																	35200	1
NURE Seds[e]	DSOP290S1	49900	1																	26100	1
NURE Seds[e]	DSOP291S1	57200	1																	34200	1
NURE Seds[e]	DSOP292S1	64600	1																	36600	1
NURE Seds[e]	DSOP293S1	66000	1																	34300	1
NURE Seds[e]	DSOP294S1	58900	1																	42900	1
NURE Seds[e]	DSOP295S1	72100	1																	30900	1
NURE Seds[e]	DSOQ001S1	50100	1																	29300	1
NURE Seds[e]	DSOQ002S1	59200	1																	28800	1
NURE Seds[e]	DSOQ003S1	56100	1																	32800	1
NURE Seds[e]	DSOQ004S1	58200	1																	24200	1
NURE Seds[e]	DSOQ005S1	62300	1																	23400	1
NURE Seds[e]	DSOQ006S1	59300	1																	18300	1
NURE Seds[e]	DSOQ007S1	53300	1																	24000	1
NURE Seds[e]	DSOQ008S1	58000	1																	20900	1
NURE Seds[e]	DSOQ009S1	89500	1																	27500	1
NURE Seds[e]	DSOQ010S1	56500	1																	27600	1
NURE Seds[e]	DSOQ011S1	71900	1																	33500	1
NURE Seds[e]	DSOQ012S1	77300	1																	55200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP271S1			900	1											50	1		
NURE Seds[e]	DSOP272S1			1500	1											70	1		
NURE Seds[e]	DSOP274S1			780	1											100	1		
NURE Seds[e]	DSOP276S1			410	1											50	1		
NURE Seds[e]	DSOP277S1			590	1											70	1		
NURE Seds[e]	DSOP278S1			360	1											70	1		
NURE Seds[e]	DSOP279S1			480	1											40	1		
NURE Seds[e]	DSOP280S1			720	1											130	1		
NURE Seds[e]	DSOP281S1			700	1											70	1		
NURE Seds[e]	DSOP282S1			600	1											60	1		
NURE Seds[e]	DSOP283S1			920	1											100	1		
NURE Seds[e]	DSOP284S1			850	1											120	1		
NURE Seds[e]	DSOP285S1			560	1											60	1		
NURE Seds[e]	DSOP286S1			390	1											60	1		
NURE Seds[e]	DSOP287S1			520	1											80	1		
NURE Seds[e]	DSOP288S1			830	1											150	1		
NURE Seds[e]	DSOP289S1			890	1											120	1		
NURE Seds[e]	DSOP290S1			1130	1											60	1		
NURE Seds[e]	DSOP291S1			540	1											80	1		
NURE Seds[e]	DSOP292S1			740	1											90	1		
NURE Seds[e]	DSOP293S1			850	1											100	1		
NURE Seds[e]	DSOP294S1			580	1											60	1		
NURE Seds[e]	DSOP295S1			730	1											60	1		
NURE Seds[e]	DSOQ001S1			820	1											40	1		
NURE Seds[e]	DSOQ002S1			430	1											50	1		
NURE Seds[e]	DSOQ003S1			570	1											40	1		
NURE Seds[e]	DSOQ004S1			1060	1											40	1		
NURE Seds[e]	DSOQ005S1			880	1											60	1		
NURE Seds[e]	DSOQ006S1			300	1											50	1		
NURE Seds[e]	DSOQ007S1			700	1											50	1		
NURE Seds[e]	DSOQ008S1			550	1											40	1		
NURE Seds[e]	DSOQ009S1			580	1											70	1		
NURE Seds[e]	DSOQ010S1			560	1											40	1		
NURE Seds[e]	DSOQ011S1			500	1											40	1		
NURE Seds[e]	DSOQ012S1			1340	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOQ013S1	64200	1																	29400	1
NURE Seds[e]	DSOQ014S1	66300	1																	28600	1
NURE Seds[e]	DSOQ015S1	58900	1																	29800	1
NURE Seds[e]	DSOQ016S1	59200	1																	32700	1
NURE Seds[e]	DSOQ017S1	60300	1																	27300	1
NURE Seds[e]	DSOQ019S1	58800	1																	21900	1
NURE Seds[e]	DSOQ020S1	63500	1																	29200	1
NURE Seds[e]	DSOQ021S1	52300	1																	22200	1
NURE Seds[e]	DSOQ022S1	59500	1																	27100	1
NURE Seds[e]	DSOQ023S1	65400	1																	18500	1
NURE Seds[e]	DSOQ024S1	64600	1																	21600	1
NURE Seds[e]	DSOQ026S1	60100	1																	26200	1
NURE Seds[e]	DSOR002S1	56000	1																	85000	1
NURE Seds[e]	DSOR003S1	65000	1																	53400	1
NURE Seds[e]	DSOR004S1	62200	1																	38500	1
NURE Seds[e]	DSOR005S1	52500	1																	25700	1
NURE Seds[e]	DSOR006S1	55400	1																	30600	1
NURE Seds[e]	DSOR009S1	59800	1																	33900	1
NURE Seds[e]	DSOR010S1	53300	1																	34700	1
NURE Seds[e]	DSOR011S1	54200	1																	37500	1
NURE Seds[e]	DSOR012S1	73400	1																	37700	1
NURE Seds[e]	DSOR014S1	67700	1																	35400	1
NURE Seds[e]	DSOR015S1	54900	1																	31300	1
NURE Seds[e]	DSOR016S1	56000	1																	29000	1
NURE Seds[e]	DSOR019S1	62400	1																	19300	1
NURE Seds[e]	DSOR021S1	62800	1																	48100	1
NURE Seds[e]	DSOR024S1	66600	1																	39400	1
NURE Seds[e]	DSOR026S1	59600	1																	36100	1
NURE Seds[e]	DSOR028S1	63700	1																	32200	1
NURE Seds[e]	DSOR029S1	76200	1																	42200	1
NURE Seds[e]	DSOR030S1	66700	1																	38700	1
NURE Seds[e]	DSOR031S1	74700	1																	39700	1
NURE Seds[e]	DSOR033S1	97800	1																	32100	1
NURE Seds[e]	DSOR034S1	61400	1																	31300	1
NURE Seds[e]	DSOR035S1	67100	1																	39100	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOQ013S1			1020	1											60	1		
NURE Seds[e]	DSOQ014S1			860	1											80	1		
NURE Seds[e]	DSOQ015S1			710	1											60	1		
NURE Seds[e]	DSOQ016S1			1390	1											80	1		
NURE Seds[e]	DSOQ017S1			330	1											50	1		
NURE Seds[e]	DSOQ019S1			790	1											50	1		
NURE Seds[e]	DSOQ020S1			850	1											70	1		
NURE Seds[e]	DSOQ021S1			430	1											40	1		
NURE Seds[e]	DSOQ022S1			570	1											40	1		
NURE Seds[e]	DSOQ023S1			350	1											30	1		
NURE Seds[e]	DSOQ024S1			440	1											40	1		
NURE Seds[e]	DSOQ026S1			720	1											110	1		
NURE Seds[e]	DSOR002S1			1480	1											290	1		
NURE Seds[e]	DSOR003S1			750	1											140	1		
NURE Seds[e]	DSOR004S1			670	1											100	1		
NURE Seds[e]	DSOR005S1			580	1											70	1		
NURE Seds[e]	DSOR006S1			720	1											80	1		
NURE Seds[e]	DSOR009S1			640	1											70	1		
NURE Seds[e]	DSOR010S1			590	1											70	1		
NURE Seds[e]	DSOR011S1			560	1											90	1		
NURE Seds[e]	DSOR012S1			810	1											90	1		
NURE Seds[e]	DSOR014S1			760	1											110	1		
NURE Seds[e]	DSOR015S1			540	1											70	1		
NURE Seds[e]	DSOR016S1			590	1											70	1		
NURE Seds[e]	DSOR019S1			610	1											40	1		
NURE Seds[e]	DSOR021S1			930	1											120	1		
NURE Seds[e]	DSOR024S1			700	1											90	1		
NURE Seds[e]	DSOR026S1			1480	1											110	1		
NURE Seds[e]	DSOR028S1			580	1											80	1		
NURE Seds[e]	DSOR029S1			640	1											90	1		
NURE Seds[e]	DSOR030S1			1300	1											100	1		
NURE Seds[e]	DSOR031S1			590	1											90	1		
NURE Seds[e]	DSOR033S1			950	1											90	1		
NURE Seds[e]	DSOR034S1			670	1											70	1		
NURE Seds[e]	DSOR035S1			760	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR037S1	65100	1																	36100	1
NURE Seds[e]	DSOR038S1	62700	1																	24600	1
NURE Seds[e]	DSOR041S1	57600	1																	37300	1
NURE Seds[e]	DSOR044S1	57600	1																	25100	1
NURE Seds[e]	DSOR045S1	60400	1																	33100	1
NURE Seds[e]	DSOR048S1	55600	1																	29400	1
NURE Seds[e]	DSOR049S1	58000	1																	30700	1
NURE Seds[e]	DSOR050S1	54000	1																	44700	1
NURE Seds[e]	DSOR052S1	59400	1																	35700	1
NURE Seds[e]	DSOR054S1	66400	1																	40700	1
NURE Seds[e]	DSOR055S1	56300	1																	34600	1
NURE Seds[e]	DSOR056S1	62700	1																	40800	1
NURE Seds[e]	DSOR057S1	67900	1																	33100	1
NURE Seds[e]	DSOR058S1	57200	1																	37900	1
NURE Seds[e]	DSOR060S1	61800	1																	29400	1
NURE Seds[e]	DSOR063S1	66800	1																	33600	1
NURE Seds[e]	DSOR070S1	58900	1																	29400	1
NURE Seds[e]	DSOR073S1	61100	1																	39700	1
NURE Seds[e]	DSOR074S1	62700	1																	42700	1
NURE Seds[e]	DSOR075S1	63400	1																	38000	1
NURE Seds[e]	DSOR076S1	77700	1																	45600	1
NURE Seds[e]	DSOR079S1	65400	1																	26600	1
NURE Seds[e]	DSOR080S1	60100	1																	39200	1
NURE Seds[e]	DSOR081S1	63100	1																	42100	1
NURE Seds[e]	DSOR082S1	60800	1																	43100	1
NURE Seds[e]	DSOR084S1	74100	1																	70900	1
NURE Seds[e]	DSOR085S1	62100	1																	30000	1
NURE Seds[e]	DSOR087S1	67500	1																	76100	1
NURE Seds[e]	DSOR091S1	63100	1																	41900	1
NURE Seds[e]	DSOR093S1	62200	1																	32500	1
NURE Seds[e]	DSOR094S1	64600	1																	32900	1
NURE Seds[e]	DSOR095S1	59700	1																	25000	1
NURE Seds[e]	DSOR096S1	59800	1																	39200	1
NURE Seds[e]	DSOR099S1	59500	1																	36100	1
NURE Seds[e]	DSOR103S1	69100	1																	31300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR037S1			800	1											50	1		
NURE Seds[e]	DSOR038S1			800	1											80	1		
NURE Seds[e]	DSOR041S1			740	1											70	1		
NURE Seds[e]	DSOR044S1			770	1											70	1		
NURE Seds[e]	DSOR045S1			800	1											50	1		
NURE Seds[e]	DSOR048S1			810	1											50	1		
NURE Seds[e]	DSOR049S1			920	1											60	1		
NURE Seds[e]	DSOR050S1			730	1											70	1		
NURE Seds[e]	DSOR052S1			830	1											80	1		
NURE Seds[e]	DSOR054S1			810	1											90	1		
NURE Seds[e]	DSOR055S1			470	1											70	1		
NURE Seds[e]	DSOR056S1			730	1											90	1		
NURE Seds[e]	DSOR057S1			810	1											80	1		
NURE Seds[e]	DSOR058S1			800	1											70	1		
NURE Seds[e]	DSOR060S1			700	1											50	1		
NURE Seds[e]	DSOR063S1			1120	1											60	1		
NURE Seds[e]	DSOR070S1			680	1											60	1		
NURE Seds[e]	DSOR073S1			960	1											120	1		
NURE Seds[e]	DSOR074S1			730	1											80	1		
NURE Seds[e]	DSOR075S1			1010	1											70	1		
NURE Seds[e]	DSOR076S1			940	1											110	1		
NURE Seds[e]	DSOR079S1			20	0											90	1		
NURE Seds[e]	DSOR080S1			650	1											80	1		
NURE Seds[e]	DSOR081S1			620	1											80	1		
NURE Seds[e]	DSOR082S1			580	1											70	1		
NURE Seds[e]	DSOR084S1			2710	1											120	1		
NURE Seds[e]	DSOR085S1			770	1											100	1		
NURE Seds[e]	DSOR087S1			920	1											210	1		
NURE Seds[e]	DSOR091S1			580	1											90	1		
NURE Seds[e]	DSOR093S1			670	1											60	1		
NURE Seds[e]	DSOR094S1			660	1											70	1		
NURE Seds[e]	DSOR095S1			1010	1											90	1		
NURE Seds[e]	DSOR096S1			680	1											90	1		
NURE Seds[e]	DSOR099S1			750	1											80	1		
NURE Seds[e]	DSOR103S1			790	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR105S1	70200	1																	29000	1
NURE Seds[e]	DSOR107S1	70400	1																	30200	1
NURE Seds[e]	DSOR108S1	56600	1																	28900	1
NURE Seds[e]	DSOR111S1	55400	1																	35300	1
NURE Seds[e]	DSOR114S1	61300	1																	41500	1
NURE Seds[e]	DSOR115S1	61900	1																	37500	1
NURE Seds[e]	DSOR116S1	500	0																		
NURE Seds[e]	DSOR117S1	63900	1																	34400	1
NURE Seds[e]	DSOR123S1	64600	1																	33500	1
NURE Seds[e]	DSOR124S1	66200	1																	30200	1
NURE Seds[e]	DSOR125S1	68500	1																	29900	1
NURE Seds[e]	DSOR138S1	55100	1																	37100	1
NURE Seds[e]	DSOR139S1	62800	1																	35100	1
NURE Seds[e]	DSOR140S1	61400	1																	36600	1
NURE Seds[e]	DSOR141S1	57000	1																	34600	1
NURE Seds[e]	DSOR142S1	54500	1																	50800	1
NURE Seds[e]	DSOR144S1	57800	1																	42000	1
NURE Seds[e]	DSOR145S1	56500	1																	40200	1
NURE Seds[e]	DSOR146S1	61300	1																	30000	1
NURE Seds[e]	DSOR148S1	56400	1																	39700	1
NURE Seds[e]	DSOR149S1	61300	1																	41000	1
NURE Seds[e]	DSOR150S1	56400	1																	37500	1
NURE Seds[e]	DSOR151S1	57200	1																	33600	1
NURE Seds[e]	DSOR155S1	62100	1																	35800	1
NURE Seds[e]	DSOR156S1	61100	1																	34600	1
NURE Seds[e]	DSOR159S1	54100	1																	34500	1
NURE Seds[e]	DSOR162S1	62400	1																	43700	1
NURE Seds[e]	DSOR163S1	62200	1																	43800	1
NURE Seds[e]	DSOR164S1	56500	1																	38100	1
NURE Seds[e]	DSOR165S1	62100	1																	33100	1
NURE Seds[e]	DSOR166S1	68500	1																	44600	1
NURE Seds[e]	DSOR167S1	65600	1																	43800	1
NURE Seds[e]	DSOR168S1	58200	1																	32400	1
NURE Seds[e]	DSOR170S1	71300	1																	45200	1
NURE Seds[e]	DSOR172S1	72300	1																	40300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR105S1			1370	1											50	1		
NURE Seds[e]	DSOR107S1			750	1											60	1		
NURE Seds[e]	DSOR108S1			790	1											50	1		
NURE Seds[e]	DSOR111S1			530	1											50	1		
NURE Seds[e]	DSOR114S1			500	1											80	1		
NURE Seds[e]	DSOR115S1			680	1											60	1		
NURE Seds[e]	DSOR116S1			20	0														
NURE Seds[e]	DSOR117S1			440	1											60	1		
NURE Seds[e]	DSOR123S1			940	1											100	1		
NURE Seds[e]	DSOR124S1			720	1											50	1		
NURE Seds[e]	DSOR125S1			920	1											80	1		
NURE Seds[e]	DSOR138S1			860	1											70	1		
NURE Seds[e]	DSOR139S1			1530	1											90	1		
NURE Seds[e]	DSOR140S1			710	1											50	1		
NURE Seds[e]	DSOR141S1			710	1											70	1		
NURE Seds[e]	DSOR142S1			860	1											100	1		
NURE Seds[e]	DSOR144S1			790	1											70	1		
NURE Seds[e]	DSOR145S1			870	1											90	1		
NURE Seds[e]	DSOR146S1			610	1											60	1		
NURE Seds[e]	DSOR148S1			720	1											60	1		
NURE Seds[e]	DSOR149S1			720	1											70	1		
NURE Seds[e]	DSOR150S1			820	1											70	1		
NURE Seds[e]	DSOR151S1			580	1											60	1		
NURE Seds[e]	DSOR155S1			780	1											80	1		
NURE Seds[e]	DSOR156S1			610	1											60	1		
NURE Seds[e]	DSOR159S1			820	1											60	1		
NURE Seds[e]	DSOR162S1			1170	1											100	1		
NURE Seds[e]	DSOR163S1			720	1											70	1		
NURE Seds[e]	DSOR164S1			1080	1											90	1		
NURE Seds[e]	DSOR165S1			920	1											110	1		
NURE Seds[e]	DSOR166S1			600	1											70	1		
NURE Seds[e]	DSOR167S1			680	1											100	1		
NURE Seds[e]	DSOR168S1			630	1											110	1		
NURE Seds[e]	DSOR170S1			680	1											140	1		
NURE Seds[e]	DSOR172S1			940	1											140	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR173S1	66200	1																	40300	1
NURE Seds[e]	DSOR174S1	62200	1																	30800	1
NURE Seds[e]	DSOR175S1	59300	1																	35100	1
NURE Seds[e]	DSOR176S1	63300	1																	48100	1
NURE Seds[e]	DSOR177S1	56500	1																	35700	1
NURE Seds[e]	DSOR178S1	61400	1																	84500	1
NURE Seds[e]	DSOR179S1	64800	1																	41400	1
NURE Seds[e]	DSOR180S1	59700	1																	30100	1
NURE Seds[e]	DSOR181S1	61800	1																	45600	1
NURE Seds[e]	DSOR182S1	51500	1																	39700	1
NURE Seds[e]	DSOR185S1	61800	1																	39600	1
NURE Seds[e]	DSOR186S1	54300	1																	78900	1
NURE Seds[e]	DSOR188S1	58700	1																	43900	1
NURE Seds[e]	DSOR190S1	56500	1																	52200	1
NURE Seds[e]	DSOR192S1	53900	1																	46000	1
NURE Seds[e]	DSOR194S1	58800	1																	51900	1
NURE Seds[e]	DSOR195S1	57900	1																	38800	1
NURE Seds[e]	DSOR196S1	55800	1																	32800	1
NURE Seds[e]	DSOR197S1	57500	1																	35400	1
NURE Seds[e]	DSOR198S1	53600	1																	30100	1
NURE Seds[e]	DSOR199S1	51400	1																	44900	1
NURE Seds[e]	DSOR200S1	57600	1																	41100	1
NURE Seds[e]	DSOR201S1	62200	1																	41900	1
NURE Seds[e]	DSOR203S1	63100	1																	48500	1
NURE Seds[e]	DSOR204S1	53900	1																	37500	1
NURE Seds[e]	DSOR205S1	55900	1																	37000	1
NURE Seds[e]	DSOR206S1	68000	1																	98500	1
NURE Seds[e]	DSOR208S1	58600	1																	68000	1
NURE Seds[e]	DSOR209S1	57500	1																	37900	1
NURE Seds[e]	DSOR210S1	62100	1																	74900	1
NURE Seds[e]	DSOR211S1	64800	1																	37200	1
NURE Seds[e]	DSOR213S1	88000	1																	53900	1
NURE Seds[e]	DSOR214S1	52800	1																	35400	1
NURE Seds[e]	DSOR215S1	66100	1																	36200	1
NURE Seds[e]	DSOR217S1	60000	1																	50200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR173S1			720	1											120	1		
NURE Seds[e]	DSOR174S1			510	1											80	1		
NURE Seds[e]	DSOR175S1			580	1											60	1		
NURE Seds[e]	DSOR176S1			840	1											130	1		
NURE Seds[e]	DSOR177S1			1140	1											90	1		
NURE Seds[e]	DSOR178S1			1310	1											200	1		
NURE Seds[e]	DSOR179S1			790	1											150	1		
NURE Seds[e]	DSOR180S1			690	1											90	1		
NURE Seds[e]	DSOR181S1			720	1											90	1		
NURE Seds[e]	DSOR182S1			1260	1											150	1		
NURE Seds[e]	DSOR185S1			1310	1											90	1		
NURE Seds[e]	DSOR186S1			1380	1											210	1		
NURE Seds[e]	DSOR188S1			920	1											160	1		
NURE Seds[e]	DSOR190S1			650	1											120	1		
NURE Seds[e]	DSOR192S1			810	1											160	1		
NURE Seds[e]	DSOR194S1			770	1											120	1		
NURE Seds[e]	DSOR195S1			780	1											110	1		
NURE Seds[e]	DSOR196S1			630	1											80	1		
NURE Seds[e]	DSOR197S1			590	1											60	1		
NURE Seds[e]	DSOR198S1			700	1											100	1		
NURE Seds[e]	DSOR199S1			700	1											110	1		
NURE Seds[e]	DSOR200S1			590	1											110	1		
NURE Seds[e]	DSOR201S1			700	1											90	1		
NURE Seds[e]	DSOR203S1			720	1											180	1		
NURE Seds[e]	DSOR204S1			610	1											90	1		
NURE Seds[e]	DSOR205S1			720	1											90	1		
NURE Seds[e]	DSOR206S1			1610	1											350	1		
NURE Seds[e]	DSOR208S1			1090	1											190	1		
NURE Seds[e]	DSOR209S1			790	1											110	1		
NURE Seds[e]	DSOR210S1			1020	1											260	1		
NURE Seds[e]	DSOR211S1			600	1											110	1		
NURE Seds[e]	DSOR213S1			770	1											130	1		
NURE Seds[e]	DSOR214S1			590	1											90	1		
NURE Seds[e]	DSOR215S1			530	1											90	1		
NURE Seds[e]	DSOR217S1			970	1											170	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR218S1	73500	1																	40700	1
NURE Seds[e]	DSOR220S1	67500	1																	44100	1
NURE Seds[e]	DSOR221S1	59800	1																	34800	1
NURE Seds[e]	DSOR224S1	79700	1																	61200	1
NURE Seds[e]	DSOR226S1	58600	1																	33500	1
NURE Seds[e]	DSOR227S1	58600	1																	29500	1
NURE Seds[e]	DSOR228S1	55000	1																	37700	1
NURE Seds[e]	DSOR230S1	68900	1																	43500	1
NURE Seds[e]	DSOR233S1	58100	1																	39000	1
NURE Seds[e]	DSOR234S1	59700	1																	63900	1
NURE Seds[e]	DSOR235S1	61800	1																	70600	1
NURE Seds[e]	DSOR236S1	53600	1																	36200	1
NURE Seds[e]	DSOR238S1	55000	1																	33500	1
NURE Seds[e]	DSOR242S1	49000	1																	48700	1
NURE Seds[e]	DSOR243S1	58200	1																	30700	1
NURE Seds[e]	DSOR244S1	53700	1																	41000	1
NURE Seds[e]	DSOR246S1	51000	1																	35600	1
NURE Seds[e]	DSOR250S1	56200	1																	35700	1
NURE Seds[e]	DSOR252S1	57600	1																	32000	1
NURE Seds[e]	DSOR255S1	61000	1																	32600	1
NURE Seds[e]	DSOR256S1	55300	1																	33500	1
NURE Seds[e]	DSOR257S1	56900	1																	49000	1
NURE Seds[e]	DSOR258S1	62500	1																	35700	1
NURE Seds[e]	DSOR259S1	57100	1																	40500	1
NURE Seds[e]	DSOR260S1	61100	1																	32600	1
NURE Seds[e]	DSOR261S1	58100	1																	39600	1
NURE Seds[e]	DSOR265S1	61500	1																	53500	1
NURE Seds[e]	DSOR266S1	65900	1																	44500	1
NURE Seds[e]	DSOR267S1	55300	1																	32400	1
NURE Seds[e]	DSOR268S1	64000	1																	30100	1
NURE Seds[e]	DSOR269S1	64200	1																	30500	1
NURE Seds[e]	DSOR270S1	69900	1																	36400	1
NURE Seds[e]	DSOR272S1	61700	1																	37500	1
NURE Seds[e]	DSOR274S1	52900	1																	38900	1
NURE Seds[e]	DSOR275S1	65700	1																	52700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR218S1			700	1											90	1		
NURE Seds[e]	DSOR220S1			2590	1											110	1		
NURE Seds[e]	DSOR221S1			570	1											80	1		
NURE Seds[e]	DSOR224S1			1240	1											170	1		
NURE Seds[e]	DSOR226S1			620	1											60	1		
NURE Seds[e]	DSOR227S1			490	1											70	1		
NURE Seds[e]	DSOR228S1			590	1											100	1		
NURE Seds[e]	DSOR230S1			720	1											110	1		
NURE Seds[e]	DSOR233S1			1220	1											90	1		
NURE Seds[e]	DSOR234S1			1000	1											140	1		
NURE Seds[e]	DSOR235S1			830	1											150	1		
NURE Seds[e]	DSOR236S1			510	1											70	1		
NURE Seds[e]	DSOR238S1			500	1											60	1		
NURE Seds[e]	DSOR242S1			580	1											100	1		
NURE Seds[e]	DSOR243S1			770	1											80	1		
NURE Seds[e]	DSOR244S1			730	1											110	1		
NURE Seds[e]	DSOR246S1			530	1											40	1		
NURE Seds[e]	DSOR250S1			750	1											100	1		
NURE Seds[e]	DSOR252S1			640	1											100	1		
NURE Seds[e]	DSOR255S1			780	1											70	1		
NURE Seds[e]	DSOR256S1			1070	1											80	1		
NURE Seds[e]	DSOR257S1			990	1											150	1		
NURE Seds[e]	DSOR258S1			550	1											80	1		
NURE Seds[e]	DSOR259S1			740	1											120	1		
NURE Seds[e]	DSOR260S1			770	1											120	1		
NURE Seds[e]	DSOR261S1			730	1											170	1		
NURE Seds[e]	DSOR265S1			920	1											170	1		
NURE Seds[e]	DSOR266S1			870	1											100	1		
NURE Seds[e]	DSOR267S1			900	1											80	1		
NURE Seds[e]	DSOR268S1			860	1											80	1		
NURE Seds[e]	DSOR269S1			710	1											60	1		
NURE Seds[e]	DSOR270S1			870	1											100	1		
NURE Seds[e]	DSOR272S1			610	1											80	1		
NURE Seds[e]	DSOR274S1			520	1											80	1		
NURE Seds[e]	DSOR275S1			1170	1											140	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR276S1	61200	1																	34100	1
NURE Seds[e]	DSOR281S1	58000	1																	39300	1
NURE Seds[e]	DSOR282S1	63100	1																	26800	1
NURE Seds[e]	DSOR284S1	78500	1																	66100	1
NURE Seds[e]	DSOR286S1	60900	1																	29800	1
NURE Seds[e]	DSOR287S1	63800	1																	34800	1
NURE Seds[e]	DSOR288S1	62200	1																	30200	1
NURE Seds[e]	DSOR289S1	69700	1																	33000	1
NURE Seds[e]	DSOR290S1	77200	1																	41500	1
NURE Seds[e]	DSOR292S1	30900	1																	25300	1
NURE Seds[e]	DSOR293S1	65800	1																	28000	1
NURE Seds[e]	DSOR294S1	68000	1																	37600	1
NURE Seds[e]	DSOR296S1	57500	1																	39400	1
NURE Seds[e]	DSOR297S1	60000	1																	43600	1
NURE Seds[e]	DSOR298S1	500	0																	43200	1
NURE Seds[e]	DSOR299S1	63700	1																	33100	1
NURE Seds[e]	DSOR301S1	67000	1																	49100	1
NURE Seds[e]	DSOR303S1	56200	1																	38200	1
NURE Seds[e]	DSOR304S1	50600	1																	33500	1
NURE Seds[e]	DSOR305S1	64900	1																	51100	1
NURE Seds[e]	DSOR306S1	52700	1																	28200	1
NURE Seds[e]	DSOR307S1	58800	1																	51000	1
NURE Seds[e]	DSOR308S1	62300	1																	44100	1
NURE Seds[e]	DSOR309S1	50500	1																	31800	1
NURE Seds[e]	DSOR310S1	62500	1																	38500	1
NURE Seds[e]	DSOR311S1	60700	1																	31000	1
NURE Seds[e]	DSOR312S1	54400	1																	38000	1
NURE Seds[e]	DSOR316S1	49700	1																	38600	1
NURE Seds[e]	DSOR317S1	57600	1																	45400	1
NURE Seds[e]	DSOR318S1	54900	1																	32000	1
NURE Seds[e]	DSOR320S1	75800	1																	38600	1
NURE Seds[e]	DSOR325S1	65700	1																	34100	1
NURE Seds[e]	DSOR326S1	54000	1																	39700	1
NURE Seds[e]	DSOR328S1	63800	1																	42700	1
NURE Seds[e]	DSOR329S1	56200	1																	34600	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR276S1			790	1											80	1		
NURE Seds[e]	DSOR281S1			860	1											100	1		
NURE Seds[e]	DSOR282S1			770	1											80	1		
NURE Seds[e]	DSOR284S1			980	1											160	1		
NURE Seds[e]	DSOR286S1			730	1											70	1		
NURE Seds[e]	DSOR287S1			900	1											90	1		
NURE Seds[e]	DSOR288S1			740	1											70	1		
NURE Seds[e]	DSOR289S1			590	1											70	1		
NURE Seds[e]	DSOR290S1			820	1											110	1		
NURE Seds[e]	DSOR292S1			400	1											30	1		
NURE Seds[e]	DSOR293S1			600	1											70	1		
NURE Seds[e]	DSOR294S1			850	1											90	1		
NURE Seds[e]	DSOR296S1			580	1											100	1		
NURE Seds[e]	DSOR297S1			700	1											80	1		
NURE Seds[e]	DSOR298S1			840	1											110	1		
NURE Seds[e]	DSOR299S1			700	1											50	1		
NURE Seds[e]	DSOR301S1			1620	1											150	1		
NURE Seds[e]	DSOR303S1			880	1											90	1		
NURE Seds[e]	DSOR304S1			430	1											90	1		
NURE Seds[e]	DSOR305S1			1020	1											160	1		
NURE Seds[e]	DSOR306S1			960	1											80	1		
NURE Seds[e]	DSOR307S1			830	1											90	1		
NURE Seds[e]	DSOR308S1			780	1											130	1		
NURE Seds[e]	DSOR309S1			410	1											70	1		
NURE Seds[e]	DSOR310S1			1010	1											120	1		
NURE Seds[e]	DSOR311S1			680	1											60	1		
NURE Seds[e]	DSOR312S1			950	1											80	1		
NURE Seds[e]	DSOR316S1			690	1											80	1		
NURE Seds[e]	DSOR317S1			820	1											70	1		
NURE Seds[e]	DSOR318S1			1550	1											50	1		
NURE Seds[e]	DSOR320S1			1370	1											100	1		
NURE Seds[e]	DSOR325S1			670	1											60	1		
NURE Seds[e]	DSOR326S1			820	1											80	1		
NURE Seds[e]	DSOR328S1			1030	1											120	1		
NURE Seds[e]	DSOR329S1			440	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR330S1	55700	1																	34400	1
NURE Seds[e]	DSOR332S1	58200	1																	37700	1
NURE Seds[e]	DSOR333S1	61300	1																	50300	1
NURE Seds[e]	DSOR334S1	59200	1																	34800	1
NURE Seds[e]	DSOR335S1	56300	1																	31200	1
NURE Seds[e]	DSOR336S1	60600	1																	37500	1
NURE Seds[e]	DSOR337S1	62500	1																	59700	1
NURE Seds[e]	DSOR338S1	61000	1																	41600	1
NURE Seds[e]	DSOR342S1	64400	1																	38600	1
NURE Seds[e]	DSOR343S1	66000	1																	41300	1
NURE Seds[e]	DSOR345S1	59800	1																	34400	1
NURE Seds[e]	DSOR346S1	57400	1																	35000	1
NURE Seds[e]	DSOR347S1	54300	1																	23700	1
NURE Seds[e]	DSOR349S1	54400	1																	37500	1
NURE Seds[e]	DSOR350S1	58600	1																	38500	1
NURE Seds[e]	DSOR351S1	59500	1																	27000	1
NURE Seds[e]	DSOR352S1	500	0																	33400	1
NURE Seds[e]	DSOR353S1	59500	1																	36100	1
NURE Seds[e]	DSOR354S1	39600	1																	19900	1
NURE Seds[e]	DSOR355S1	55900	1																	35500	1
NURE Seds[e]	DSOR356S1	59300	1																	32300	1
NURE Seds[e]	DSOR357S1	52400	1																	29000	1
NURE Seds[e]	DSOR360S1	59500	1																	34100	1
NURE Seds[e]	DSOR361S1	54600	1																	32700	1
NURE Seds[e]	DSOR362S1	56200	1																	30200	1
NURE Seds[e]	DSOR363S1	56200	1																	41400	1
NURE Seds[e]	DSOR364S1	60600	1																	39100	1
NURE Seds[e]	DSOR365S1	47600	1																	28900	1
NURE Seds[e]	DSOR366S1	66500	1																	31700	1
NURE Seds[e]	DSOR367S1	53100	1																	37200	1
NURE Seds[e]	DSOR368S1	62200	1																	36700	1
NURE Seds[e]	DSOR369S1	59300	1																	29300	1
NURE Seds[e]	DSOR371S1	60800	1																	36700	1
NURE Seds[e]	DSOR372S1	67500	1																	32400	1
NURE Seds[e]	DSOR373S1	57200	1																	38700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR330S1			740	1											90	1		
NURE Seds[e]	DSOR332S1			620	1											90	1		
NURE Seds[e]	DSOR333S1			960	1											150	1		
NURE Seds[e]	DSOR334S1			640	1											80	1		
NURE Seds[e]	DSOR335S1			610	1											70	1		
NURE Seds[e]	DSOR336S1			1010	1											90	1		
NURE Seds[e]	DSOR337S1			1200	1											180	1		
NURE Seds[e]	DSOR338S1			1420	1											100	1		
NURE Seds[e]	DSOR342S1			1020	1											100	1		
NURE Seds[e]	DSOR343S1			740	1											70	1		
NURE Seds[e]	DSOR345S1			750	1											70	1		
NURE Seds[e]	DSOR346S1			760	1											70	1		
NURE Seds[e]	DSOR347S1			850	1											80	1		
NURE Seds[e]	DSOR349S1			1240	1											80	1		
NURE Seds[e]	DSOR350S1			840	1											90	1		
NURE Seds[e]	DSOR351S1			790	1											80	1		
NURE Seds[e]	DSOR352S1			860	1											80	1		
NURE Seds[e]	DSOR353S1			720	1											90	1		
NURE Seds[e]	DSOR354S1			230	1											170	1		
NURE Seds[e]	DSOR355S1			730	1											80	1		
NURE Seds[e]	DSOR356S1			680	1											80	1		
NURE Seds[e]	DSOR357S1			610	1											70	1		
NURE Seds[e]	DSOR360S1			860	1											80	1		
NURE Seds[e]	DSOR361S1			590	1											60	1		
NURE Seds[e]	DSOR362S1			600	1											50	1		
NURE Seds[e]	DSOR363S1			880	1											80	1		
NURE Seds[e]	DSOR364S1			1330	1											100	1		
NURE Seds[e]	DSOR365S1			600	1											50	1		
NURE Seds[e]	DSOR366S1			780	1											80	1		
NURE Seds[e]	DSOR367S1			1270	1											100	1		
NURE Seds[e]	DSOR368S1			890	1											70	1		
NURE Seds[e]	DSOR369S1			970	1											80	1		
NURE Seds[e]	DSOR371S1			730	1											100	1		
NURE Seds[e]	DSOR372S1			800	1											90	1		
NURE Seds[e]	DSOR373S1			850	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR374S1	60800	1																	42100	1
NURE Seds[e]	DSOR375S1	59100	1																	44700	1
NURE Seds[e]	DSOR381S1	59700	1																	31600	1
NURE Seds[e]	DSOR382S1	53900	1																	22400	1
NURE Seds[e]	DSOR385S1	62900	1																	36200	1
NURE Seds[e]	DSOR386S1	61300	1																	50400	1
NURE Seds[e]	DSOR391S1	90500	1																	37000	1
NURE Seds[e]	DSOR394S1	60400	1																	32900	1
NURE Seds[e]	DSOR402S1	61800	1																	31200	1
NURE Seds[e]	DSOR405S1	66100	1																	26800	1
NURE Seds[e]	DSOR406S1	62100	1																	29600	1
NURE Seds[e]	DSOR407S1	72100	1																	34000	1
NURE Seds[e]	DSOR408S1	77700	1																	33500	1
NURE Seds[e]	DSOR409S1	83900	1																	41300	1
NURE Seds[e]	DSOR410S1	69400	1																	39300	1
NURE Seds[e]	DSOR412S1	61000	1																	17900	1
NURE Seds[e]	DSOR428S1	73300	1																	35000	1
NURE Seds[e]	DSOR429S1	80700	1																	30300	1
NURE Seds[e]	DSOR430S1	78300	1																	34200	1
NURE Seds[e]	DSOR431S1	65100	1																	31200	1
NURE Seds[e]	DSOR432S1	73300	1																	30800	1
NURE Seds[e]	DSOR435S1	67100	1																	28800	1
NURE Seds[e]	DSOR436S1	64700	1																	31400	1
NURE Seds[e]	DSOR444S1	69300	1																	26700	1
NURE Seds[e]	DSOR453S1	76100	1																	33700	1
NURE Seds[e]	DSOR454S1	69000	1																	33400	1
NURE Seds[e]	DSOR459S1	57800	1																	32500	1
NURE Seds[e]	DSOR462S1	56900	1																	23300	1
NURE Seds[e]	DSOR464S1	55900	1																	36300	1
NURE Seds[e]	DSOR465S1	69100	1																	33400	1
NURE Seds[e]	DSOR466S1	62600	1																	36700	1
NURE Seds[e]	DSOR467S1	66900	1																	41800	1
NURE Seds[e]	DSOR468S1	53800	1																	34200	1
NURE Seds[e]	DSOR469S1	56900	1																	37400	1
NURE Seds[e]	DSOR470S1	59100	1																	31700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR374S1			1030	1											80	1		
NURE Seds[e]	DSOR375S1			1310	1											100	1		
NURE Seds[e]	DSOR381S1			750	1											80	1		
NURE Seds[e]	DSOR382S1			500	1											80	1		
NURE Seds[e]	DSOR385S1			1130	1											70	1		
NURE Seds[e]	DSOR386S1			1000	1											70	1		
NURE Seds[e]	DSOR391S1			750	1											60	1		
NURE Seds[e]	DSOR394S1			580	1											60	1		
NURE Seds[e]	DSOR402S1			810	1											50	1		
NURE Seds[e]	DSOR405S1			1200	1											60	1		
NURE Seds[e]	DSOR406S1			580	1											100	1		
NURE Seds[e]	DSOR407S1			480	1											50	1		
NURE Seds[e]	DSOR408S1			900	1											70	1		
NURE Seds[e]	DSOR409S1			900	1											90	1		
NURE Seds[e]	DSOR410S1			1000	1											80	1		
NURE Seds[e]	DSOR412S1			390	1											50	1		
NURE Seds[e]	DSOR428S1			940	1											70	1		
NURE Seds[e]	DSOR429S1			1210	1											100	1		
NURE Seds[e]	DSOR430S1			2230	1											50	1		
NURE Seds[e]	DSOR431S1			2150	1											60	1		
NURE Seds[e]	DSOR432S1			1750	1											60	1		
NURE Seds[e]	DSOR435S1			770	1											70	1		
NURE Seds[e]	DSOR436S1			900	1											70	1		
NURE Seds[e]	DSOR444S1			590	1											50	1		
NURE Seds[e]	DSOR453S1			980	1											90	1		
NURE Seds[e]	DSOR454S1			660	1											80	1		
NURE Seds[e]	DSOR459S1			580	1											60	1		
NURE Seds[e]	DSOR462S1			690	1											60	1		
NURE Seds[e]	DSOR464S1			920	1											80	1		
NURE Seds[e]	DSOR465S1			970	1											100	1		
NURE Seds[e]	DSOR466S1			870	1											100	1		
NURE Seds[e]	DSOR467S1			1190	1											80	1		
NURE Seds[e]	DSOR468S1			650	1											60	1		
NURE Seds[e]	DSOR469S1			1090	1											60	1		
NURE Seds[e]	DSOR470S1			810	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR471S1	58500	1																	33700	1
NURE Seds[e]	DSOR472S1	54500	1																	37100	1
NURE Seds[e]	DSOR475S1	50000	1																	28700	1
NURE Seds[e]	DSOR477S1	55900	1																	34300	1
NURE Seds[e]	DSOR478S1	56300	1																	27600	1
NURE Seds[e]	DSOR479S1	61800	1																	34200	1
NURE Seds[e]	DSOR481S1	52500	1																	29900	1
NURE Seds[e]	DSOR482S1	58800	1																	31800	1
NURE Seds[e]	DSOS001S1	58600	1																	32200	1
NURE Seds[e]	DSOS002S1	61300	1																	39500	1
NURE Seds[e]	DSOS004S1	53600	1																	37500	1
NURE Seds[e]	DSOS006S1	52300	1																	33200	1
NURE Seds[e]	DSOS007S1	56500	1																	27700	1
NURE Seds[e]	DSOS014S1	52800	1																	40700	1
NURE Seds[e]	DSOS015S1	59400	1																	18700	1
NURE Seds[e]	DSOS016S1	62600	1																	36300	1
NURE Seds[e]	DSOS017S1	59000	1																	22900	1
NURE Seds[e]	DSOS018S1	54700	1																	37900	1
NURE Seds[e]	DSOS019S1	54300	1																	49500	1
NURE Seds[e]	DSOS020S1	59100	1																	36800	1
NURE Seds[e]	DSOS021S1	56200	1																	30800	1
NURE Seds[e]	DSOS022S1	59900	1																	52900	1
NURE Seds[e]	DSOS023S1	59800	1																	22500	1
NURE Seds[e]	DSOS024S1	57600	1																	35300	1
NURE Seds[e]	DSOS026S1	58100	1																	32400	1
NURE Seds[e]	DSOS030S1	57400	1																	41100	1
NURE Seds[e]	DSOS031S1	58700	1																	42500	1
NURE Seds[e]	DSOS032S1	58600	1																	44800	1
NURE Seds[e]	DSOS033S1	58400	1																	40100	1
NURE Seds[e]	DSOS034S1	55000	1																	26800	1
NURE Seds[e]	DSOS037S1	57600	1																	45000	1
NURE Seds[e]	DSOS038S1	62600	1																	35200	1
NURE Seds[e]	DSOS040S1	55100	1																	42100	1
NURE Seds[e]	DSOS041S1	58300	1																	51700	1
NURE Seds[e]	DSOS042S1	56800	1																	35800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR471S1			860	1											70	1		
NURE Seds[e]	DSOR472S1			720	1											60	1		
NURE Seds[e]	DSOR475S1			530	1											10	0		
NURE Seds[e]	DSOR477S1			860	1											40	1		
NURE Seds[e]	DSOR478S1			470	1											40	1		
NURE Seds[e]	DSOR479S1			940	1											80	1		
NURE Seds[e]	DSOR481S1			780	1											70	1		
NURE Seds[e]	DSOR482S1			520	1											70	1		
NURE Seds[e]	DSOS001S1			960	1											80	1		
NURE Seds[e]	DSOS002S1			1120	1											100	1		
NURE Seds[e]	DSOS004S1			790	1											80	1		
NURE Seds[e]	DSOS006S1			1130	1											70	1		
NURE Seds[e]	DSOS007S1			630	1											80	1		
NURE Seds[e]	DSOS014S1			730	1											100	1		
NURE Seds[e]	DSOS015S1			850	1											80	1		
NURE Seds[e]	DSOS016S1			660	1											60	1		
NURE Seds[e]	DSOS017S1			600	1											110	1		
NURE Seds[e]	DSOS018S1			630	1											90	1		
NURE Seds[e]	DSOS019S1			630	1											110	1		
NURE Seds[e]	DSOS020S1			650	1											100	1		
NURE Seds[e]	DSOS021S1			640	1											70	1		
NURE Seds[e]	DSOS022S1			870	1											170	1		
NURE Seds[e]	DSOS023S1			440	1											60	1		
NURE Seds[e]	DSOS024S1			910	1											90	1		
NURE Seds[e]	DSOS026S1			400	1											50	1		
NURE Seds[e]	DSOS030S1			590	1											90	1		
NURE Seds[e]	DSOS031S1			820	1											90	1		
NURE Seds[e]	DSOS032S1			740	1											90	1		
NURE Seds[e]	DSOS033S1			40	1											90	1		
NURE Seds[e]	DSOS034S1			500	1											60	1		
NURE Seds[e]	DSOS037S1			680	1											100	1		
NURE Seds[e]	DSOS038S1			570	1											70	1		
NURE Seds[e]	DSOS040S1			740	1											90	1		
NURE Seds[e]	DSOS041S1			860	1											140	1		
NURE Seds[e]	DSOS042S1			860	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS043S1	57700	1																	42500	1
NURE Seds[e]	DSOS045S1	56500	1																	37200	1
NURE Seds[e]	DSOS046S1	54200	1																	63900	1
NURE Seds[e]	DSOS047S1	55700	1																	47400	1
NURE Seds[e]	DSOS048S1	60500	1																	51600	1
NURE Seds[e]	DSOS050S1	59300	1																	42700	1
NURE Seds[e]	DSOS051S1	59800	1																	37500	1
NURE Seds[e]	DSOS056S1	54400	1																	34400	1
NURE Seds[e]	DSOS058S1	62200	1																	54000	1
NURE Seds[e]	DSOS059S1	70400	1																	26700	1
NURE Seds[e]	DSOS060S1	62700	1																	61500	1
NURE Seds[e]	DSOS061S1	56500	1																	37500	1
NURE Seds[e]	DSOS063S1	59900	1																	40100	1
NURE Seds[e]	DSOS064S1	56100	1																	30700	1
NURE Seds[e]	DSOS065S1	52500	1																	23200	1
NURE Seds[e]	DSOS066S1	57800	1																	39100	1
NURE Seds[e]	DSOS067S1	55900	1																	36100	1
NURE Seds[e]	DSOS069S1	54900	1																	21200	1
NURE Seds[e]	DSOS070S1	55800	1																	28600	1
NURE Seds[e]	DSOS071S1	62400	1																	41800	1
NURE Seds[e]	DSOS072S1	54900	1																	30600	1
NURE Seds[e]	DSOS073S1	64000	1																	47400	1
NURE Seds[e]	DSOS074S1	58100	1																	49600	1
NURE Seds[e]	DSOS075S1	49600	1																	37100	1
NURE Seds[e]	DSOS076S1	50800	1																	33300	1
NURE Seds[e]	DSOS077S1	54600	1																	37800	1
NURE Seds[e]	DSOS079S1	57500	1																	29700	1
NURE Seds[e]	DSOS080S1	60300	1																	34700	1
NURE Seds[e]	DSOS082S1	57900	1																	38200	1
NURE Seds[e]	DSOS085S1	57000	1																	39200	1
NURE Seds[e]	DSOS087S1	61700	1																	30600	1
NURE Seds[e]	DSOS088S1	57500	1																	45900	1
NURE Seds[e]	DSOS092S1	61700	1																	39000	1
NURE Seds[e]	DSOS093S1	65000	1																	53500	1
NURE Seds[e]	DSOS094S1	63100	1																	37300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS043S1			980	1											170	1		
NURE Seds[e]	DSOS045S1			590	1											80	1		
NURE Seds[e]	DSOS046S1			870	1											180	1		
NURE Seds[e]	DSOS047S1			740	1											130	1		
NURE Seds[e]	DSOS048S1			860	1											130	1		
NURE Seds[e]	DSOS050S1			710	1											100	1		
NURE Seds[e]	DSOS051S1			760	1											80	1		
NURE Seds[e]	DSOS056S1			600	1											80	1		
NURE Seds[e]	DSOS058S1			1050	1											170	1		
NURE Seds[e]	DSOS059S1			590	1											80	1		
NURE Seds[e]	DSOS060S1			1180	1											240	1		
NURE Seds[e]	DSOS061S1			530	1											70	1		
NURE Seds[e]	DSOS063S1			780	1											90	1		
NURE Seds[e]	DSOS064S1			630	1											50	1		
NURE Seds[e]	DSOS065S1			800	1											80	1		
NURE Seds[e]	DSOS066S1			630	1											90	1		
NURE Seds[e]	DSOS067S1			780	1											80	1		
NURE Seds[e]	DSOS069S1			740	1											50	1		
NURE Seds[e]	DSOS070S1			650	1											80	1		
NURE Seds[e]	DSOS071S1			810	1											90	1		
NURE Seds[e]	DSOS072S1			630	1											70	1		
NURE Seds[e]	DSOS073S1			1020	1											150	1		
NURE Seds[e]	DSOS074S1			990	1											120	1		
NURE Seds[e]	DSOS075S1			490	1											80	1		
NURE Seds[e]	DSOS076S1			520	1											60	1		
NURE Seds[e]	DSOS077S1			740	1											80	1		
NURE Seds[e]	DSOS079S1			700	1											60	1		
NURE Seds[e]	DSOS080S1			880	1											60	1		
NURE Seds[e]	DSOS082S1			660	1											90	1		
NURE Seds[e]	DSOS085S1			760	1											110	1		
NURE Seds[e]	DSOS087S1			740	1											70	1		
NURE Seds[e]	DSOS088S1			790	1											120	1		
NURE Seds[e]	DSOS092S1			730	1											120	1		
NURE Seds[e]	DSOS093S1			980	1											180	1		
NURE Seds[e]	DSOS094S1			660	1											110	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS096S1	58800	1																	41200	1
NURE Seds[e]	DSOS098S1	59100	1																	25200	1
NURE Seds[e]	DSOS099S1	57500	1																	30300	1
NURE Seds[e]	DSOS100S1	66200	1																	53200	1
NURE Seds[e]	DSOS102S1	59700	1																	48900	1
NURE Seds[e]	DSOS103S1	54400	1																	46600	1
NURE Seds[e]	DSOS104S1	55900	1																	36400	1
NURE Seds[e]	DSOS106S1	54000	1																	35200	1
NURE Seds[e]	DSOS107S1	56100	1																	37200	1
NURE Seds[e]	DSOS108S1	57500	1																	40200	1
NURE Seds[e]	DSOS109S1	70500	1																	38700	1
NURE Seds[e]	DSOS110S1	58600	1																	29400	1
NURE Seds[e]	DSOS111S1	57200	1																	47000	1
NURE Seds[e]	DSOS113S1	53300	1																	35000	1
NURE Seds[e]	DSOS114S1	61500	1																	38600	1
NURE Seds[e]	DSOS115S1	57300	1																	29800	1
NURE Seds[e]	DSOS117S1	59700	1																	38500	1
NURE Seds[e]	DSOS118S1	54000	1																	35600	1
NURE Seds[e]	DSOS119S1	64200	1																	42900	1
NURE Seds[e]	DSOS124S1	59100	1																	45400	1
NURE Seds[e]	DSOS128S1	48000	1																	61300	1
NURE Seds[e]	DSOS129S1	64200	1																	38400	1
NURE Seds[e]	DSOS130S1	55000	1																	39800	1
NURE Seds[e]	DSOS131S1	59600	1																	71900	1
NURE Seds[e]	DSOS133S1	51900	1																	37400	1
NURE Seds[e]	DSOS135S1	59700	1																	25900	1
NURE Seds[e]	DSOS136S1	58100	1																	36200	1
NURE Seds[e]	DSOS137S1	58200	1																	54400	1
NURE Seds[e]	DSOS138S1	54200	1																	63800	1
NURE Seds[e]	DSOS139S1	54100	1																	54000	1
NURE Seds[e]	DSOS141S1	56600	1																	37200	1
NURE Seds[e]	DSOS142S1	55000	1																	48400	1
NURE Seds[e]	DSOS144S1	54500	1																	34600	1
NURE Seds[e]	DSOS145S1	54900	1																	44300	1
NURE Seds[e]	DSOS146S1	55700	1																	36300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS096S1			700	1											100	1		
NURE Seds[e]	DSOS098S1			430	1											50	1		
NURE Seds[e]	DSOS099S1			710	1											80	1		
NURE Seds[e]	DSOS100S1			720	1											140	1		
NURE Seds[e]	DSOS102S1			750	1											130	1		
NURE Seds[e]	DSOS103S1			760	1											100	1		
NURE Seds[e]	DSOS104S1			530	1											70	1		
NURE Seds[e]	DSOS106S1			870	1											120	1		
NURE Seds[e]	DSOS107S1			640	1											90	1		
NURE Seds[e]	DSOS108S1			610	1											80	1		
NURE Seds[e]	DSOS109S1			620	1											90	1		
NURE Seds[e]	DSOS110S1			570	1											70	1		
NURE Seds[e]	DSOS111S1			880	1											110	1		
NURE Seds[e]	DSOS113S1			560	1											90	1		
NURE Seds[e]	DSOS114S1			850	1											100	1		
NURE Seds[e]	DSOS115S1			560	1											80	1		
NURE Seds[e]	DSOS117S1			680	1											90	1		
NURE Seds[e]	DSOS118S1			680	1											80	1		
NURE Seds[e]	DSOS119S1			660	1											120	1		
NURE Seds[e]	DSOS124S1			750	1											140	1		
NURE Seds[e]	DSOS128S1			800	1											120	1		
NURE Seds[e]	DSOS129S1			850	1											90	1		
NURE Seds[e]	DSOS130S1			740	1											110	1		
NURE Seds[e]	DSOS131S1			1170	1											250	1		
NURE Seds[e]	DSOS133S1			640	1											100	1		
NURE Seds[e]	DSOS135S1			680	1											60	1		
NURE Seds[e]	DSOS136S1			630	1											60	1		
NURE Seds[e]	DSOS137S1			1130	1											140	1		
NURE Seds[e]	DSOS138S1			980	1											160	1		
NURE Seds[e]	DSOS139S1			790	1											110	1		
NURE Seds[e]	DSOS141S1			790	1											110	1		
NURE Seds[e]	DSOS142S1			760	1											120	1		
NURE Seds[e]	DSOS144S1			760	1											80	1		
NURE Seds[e]	DSOS145S1			650	1											90	1		
NURE Seds[e]	DSOS146S1			680	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS148S1	54000	1																	41800	1
NURE Seds[e]	DSOS149S1	57600	1																	41100	1
NURE Seds[e]	DSOS150S1	52400	1																	31700	1
NURE Seds[e]	DSOS152S1	56700	1																	66800	1
NURE Seds[e]	DSOS155S1	54800	1																	31200	1
NURE Seds[e]	DSOS156S1	58400	1																	54900	1
NURE Seds[e]	DSOS157S1	58500	1																	49200	1
NURE Seds[e]	DSOS158S1	49200	1																	32400	1
NURE Seds[e]	DSOS159S1	57400	1																	35300	1
NURE Seds[e]	DSOS160S1	52900	1																	35000	1
NURE Seds[e]	DSOS161S1	47700	1																	27200	1
NURE Seds[e]	DSOS162S1	52700	1																	27600	1
NURE Seds[e]	DSOS164S1	55600	1																	38100	1
NURE Seds[e]	DSOS165S1	56800	1																	37900	1
NURE Seds[e]	DSOS166S1	57300	1																	40700	1
NURE Seds[e]	DSOS168S1	50700	1																	36800	1
NURE Seds[e]	DSOS171S1	60600	1																	25200	1
NURE Seds[e]	DSOS173S1	58600	1																	31100	1
NURE Seds[e]	DSOS180S1	67700	1																	39600	1
NURE Seds[e]	DSOS181S1	61600	1																	34500	1
NURE Seds[e]	DSOS182S1	50000	1																	26200	1
NURE Seds[e]	DSOS184S1	55700	1																	39000	1
NURE Seds[e]	DSOS187S1	56700	1																	38300	1
NURE Seds[e]	DSOS193S1	57200	1																	40200	1
NURE Seds[e]	DSOS194S1	61200	1																	24200	1
NURE Seds[e]	DSOS195S1	63400	1																	44900	1
NURE Seds[e]	DSOS196S1	53400	1																	27200	1
NURE Seds[e]	DSOS198S1	55000	1																	21000	1
NURE Seds[e]	DSOS199S1	55300	1																	27000	1
NURE Seds[e]	DSOS200S1	62200	1																	25300	1
NURE Seds[e]	DSOS202S1	51300	1																	29900	1
NURE Seds[e]	DSOS203S1	50900	1																	30100	1
NURE Seds[e]	DSOS204S1	53100	1																	26800	1
NURE Seds[e]	DSOS205S1	56600	1																	28400	1
NURE Seds[e]	DSOS206S1	79700	1																	16100	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS148S1			610	1											70	1		
NURE Seds[e]	DSOS149S1			640	1											120	1		
NURE Seds[e]	DSOS150S1			770	1											110	1		
NURE Seds[e]	DSOS152S1			750	1											130	1		
NURE Seds[e]	DSOS155S1			570	1											80	1		
NURE Seds[e]	DSOS156S1			1000	1											180	1		
NURE Seds[e]	DSOS157S1			920	1											120	1		
NURE Seds[e]	DSOS158S1			590	1											70	1		
NURE Seds[e]	DSOS159S1			550	1											90	1		
NURE Seds[e]	DSOS160S1			600	1											80	1		
NURE Seds[e]	DSOS161S1			520	1											50	1		
NURE Seds[e]	DSOS162S1			720	1											80	1		
NURE Seds[e]	DSOS164S1			840	1											80	1		
NURE Seds[e]	DSOS165S1			1330	1											100	1		
NURE Seds[e]	DSOS166S1			1090	1											90	1		
NURE Seds[e]	DSOS168S1			20	0											10	0		
NURE Seds[e]	DSOS171S1			670	1											70	1		
NURE Seds[e]	DSOS173S1			530	1											10	0		
NURE Seds[e]	DSOS180S1			1960	1											90	1		
NURE Seds[e]	DSOS181S1			990	1											90	1		
NURE Seds[e]	DSOS182S1			630	1											50	1		
NURE Seds[e]	DSOS184S1			710	1											70	1		
NURE Seds[e]	DSOS187S1			790	1											80	1		
NURE Seds[e]	DSOS193S1			620	1											70	1		
NURE Seds[e]	DSOS194S1			670	1											60	1		
NURE Seds[e]	DSOS195S1			990	1											100	1		
NURE Seds[e]	DSOS196S1			580	1											70	1		
NURE Seds[e]	DSOS198S1			600	1											70	1		
NURE Seds[e]	DSOS199S1			620	1											60	1		
NURE Seds[e]	DSOS200S1			900	1											70	1		
NURE Seds[e]	DSOS202S1			820	1											80	1		
NURE Seds[e]	DSOS203S1			630	1											50	1		
NURE Seds[e]	DSOS204S1			600	1											50	1		
NURE Seds[e]	DSOS205S1			770	1											70	1		
NURE Seds[e]	DSOS206S1			620	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS208S1	69800	1																	20800	1
NURE Seds[e]	DSOS209S1	65800	1																	27700	1
NURE Seds[e]	DSOS211S1	66600	1																	24200	1
NURE Seds[e]	DSOS214S1	57800	1																	48200	1
NURE Seds[e]	DSOS216S1	71000	1																	25100	1
NURE Seds[e]	DSOS217S1	61900	1																	28300	1
NURE Seds[e]	DSOS219S1	62300	1																	22700	1
NURE Seds[e]	DSSS001S1	82200	1																	32500	1
NURE Seds[e]	DSSS002S1	56700	1																	38100	1
NURE Seds[e]	DSSS003S1	90800	1																	32500	1
NURE Seds[e]	DSSS004S1	43300	1																	30400	1
NURE Seds[e]	DSSS005S1	88900	1																	29800	1
NURE Seds[e]	DSSS006S1	42900	1																	38600	1
NURE Seds[e]	DSSS007S1	81000	1																	23800	1
NURE Seds[e]	DSSS008S1	55000	1																	27500	1
NURE Seds[e]	DSSS009S1	47700	1																	35900	1
NURE Seds[e]	DSSS010S1	51500	1																	32000	1
NURE Seds[e]	DSSS011S1	84800	1																	33600	1
NURE Seds[e]	DSSS012S1	51200	1																	24300	1
NURE Seds[e]	DSSS014S1	48000	1																	31600	1
NURE Seds[e]	DSSS015S1	77500	1																	25200	1
NURE Seds[e]	DSSS016S1	43700	1																	26100	1
NURE Seds[e]	DSSS017S1	77300	1																	25500	1
NURE Seds[e]	DSSS019S1	40400	1																		
NURE Seds[e]	DSSS022S1	73300	1																	25400	1
NURE Seds[e]	DSSS023S1	78900	1																	39200	1
NURE Seds[e]	DSSS024S1	72000	1																	18400	1
NURE Seds[e]	DSSS025S1	78300	1																	24900	1
NURE Seds[e]	DSSS026S1	65800	1																	27600	1
NURE Seds[e]	DSSS027S1	78200	1																	39900	1
NURE Seds[e]	DSSS028S1	67900	1																	26500	1
NURE Seds[e]	DSSS030S1	68600	1																		
NURE Seds[e]	DSSS032S1	74200	1																	28000	1
NURE Seds[e]	DSSS034S1	82900	1																	24400	1
NURE Seds[e]	DSSS036S1	64000	1																	29800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS208S1			380	1											40	1		
NURE Seds[e]	DSOS209S1			520	1											80	1		
NURE Seds[e]	DSOS211S1			400	1											40	1		
NURE Seds[e]	DSOS214S1			430	1											90	1		
NURE Seds[e]	DSOS216S1			470	1											50	1		
NURE Seds[e]	DSOS217S1			530	1											70	1		
NURE Seds[e]	DSOS219S1			460	1											70	1		
NURE Seds[e]	DSSS001S1			600	1											80	1		
NURE Seds[e]	DSSS002S1			850	1											100	1		
NURE Seds[e]	DSSS003S1			560	1											40	1		
NURE Seds[e]	DSSS004S1			460	1											70	1		
NURE Seds[e]	DSSS005S1			650	1											80	1		
NURE Seds[e]	DSSS006S1			2450	1											100	1		
NURE Seds[e]	DSSS007S1			410	1											40	1		
NURE Seds[e]	DSSS008S1			650	1											60	1		
NURE Seds[e]	DSSS009S1			670	1											100	1		
NURE Seds[e]	DSSS010S1			580	1											100	1		
NURE Seds[e]	DSSS011S1			280	1											40	1		
NURE Seds[e]	DSSS012S1			400	1											60	1		
NURE Seds[e]	DSSS014S1			660	1											90	1		
NURE Seds[e]	DSSS015S1			440	1											50	1		
NURE Seds[e]	DSSS016S1			400	1											60	1		
NURE Seds[e]	DSSS017S1			610	1											70	1		
NURE Seds[e]	DSSS019S1			510	1											30	1		
NURE Seds[e]	DSSS022S1			940	1											70	1		
NURE Seds[e]	DSSS023S1			1260	1											50	1		
NURE Seds[e]	DSSS024S1			990	1											50	1		
NURE Seds[e]	DSSS025S1			870	1											30	1		
NURE Seds[e]	DSSS026S1			700	1											70	1		
NURE Seds[e]	DSSS027S1			830	1											80	1		
NURE Seds[e]	DSSS028S1			660	1											50	1		
NURE Seds[e]	DSSS030S1			800	1											80	1		
NURE Seds[e]	DSSS032S1			830	1											100	1		
NURE Seds[e]	DSSS034S1			780	1											70	1		
NURE Seds[e]	DSSS036S1			560	1											40	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSSS037S1	80100	1																	34900	1
NURE Seds[e]	DSSS039S1	90800	1																	56000	1
NURE Seds[e]	DSSS042S1	84200	1																	20800	1
NURE Seds[e]	DSSS046S1	72600	1																	35500	1
NURE Seds[e]	DSSS047S1	74400	1																	25300	1
NURE Seds[e]	DSSS048S1	73300	1																	25700	1
NURE Seds[e]	DSSS050S1	51600	1																	35700	1
NURE Seds[e]	DSSS051S1	71500	1																	57400	1
NURE Seds[e]	DSSS052S1	58100	1																	28000	1
NURE Seds[e]	DSSS053S1	70900	1																	21800	1
NURE Seds[e]	DSSS054S1	80200	1																	32500	1
NURE Seds[e]	DSSS057S1	75600	1																	36200	1
NURE Seds[e]	DSSS060S1	60900	1																	43500	1
NURE Seds[e]	DSSS066S1	78200	1																	24900	1
NURE Seds[e]	DSSS068S1	76700	1																	25500	1
NURE Seds[e]	DSSS070S1	94500	1																	37300	1
NURE Seds[e]	DSSS122S1	70300	1																	32600	1
NURE Seds[e]	DSSS164S1	79800	1																	26300	1
NURE Seds[e]	DSSS165S1	83900	1																	18800	1
NURE Seds[e]	DSSS166S1	83700	1																	26100	1
NURE Seds[e]	DSSS168S1	87800	1																	25800	1
NURE Seds[e]	DSSS170S1	67300	1																	26300	1
NURE Seds[e]	DSSS171S1	88200	1																	20200	1
NURE Seds[e]	DSSS172S1	74300	1																	38300	1
NURE Seds[e]	DSSS180S1	63500	1																	28700	1
NURE Seds[e]	DSSS181S1	75200	1																	24300	1
NURE Seds[e]	DSSS182S1	66700	1																	27200	1
NURE Seds[e]	DSSS185S1	73500	1																	27800	1
NURE Seds[e]	DSSS190S1	55300	1																	29300	1
NURE Seds[e]	DSSS192S1	66200	1																	43400	1
NURE Seds[e]	DSSS193S1	71600	1																	32100	1
NURE Seds[e]	DSSS194S1	61800	1																	37800	1
NURE Seds[e]	DSSS195S1	71100	1																	27700	1
NURE Seds[e]	DSSS197S1	81900	1																	21300	1
NURE Seds[e]	DSSS198S1	69900	1																	24800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSSS037S1			870	1											100	1		
NURE Seds[e]	DSSS039S1			710	1											100	1		
NURE Seds[e]	DSSS042S1			420	1											30	1		
NURE Seds[e]	DSSS046S1			480	1											70	1		
NURE Seds[e]	DSSS047S1			500	1											60	1		
NURE Seds[e]	DSSS048S1			470	1											50	1		
NURE Seds[e]	DSSS050S1			530	1											60	1		
NURE Seds[e]	DSSS051S1			870	1											180	1		
NURE Seds[e]	DSSS052S1			510	1											50	1		
NURE Seds[e]	DSSS053S1			1010	1											40	1		
NURE Seds[e]	DSSS054S1			1130	1											70	1		
NURE Seds[e]	DSSS057S1			1610	1											90	1		
NURE Seds[e]	DSSS060S1			1480	1											60	1		
NURE Seds[e]	DSSS066S1			340	1											40	1		
NURE Seds[e]	DSSS068S1			790	1											70	1		
NURE Seds[e]	DSSS070S1			390	1											50	1		
NURE Seds[e]	DSSS122S1			620	1											50	1		
NURE Seds[e]	DSSS164S1			920	1											50	1		
NURE Seds[e]	DSSS165S1			540	1											30	1		
NURE Seds[e]	DSSS166S1			840	1											60	1		
NURE Seds[e]	DSSS168S1			600	1											80	1		
NURE Seds[e]	DSSS170S1			550	1											40	1		
NURE Seds[e]	DSSS171S1			480	1											30	1		
NURE Seds[e]	DSSS172S1			1090	1											110	1		
NURE Seds[e]	DSSS180S1			410	1											40	1		
NURE Seds[e]	DSSS181S1			460	1											70	1		
NURE Seds[e]	DSSS182S1			1070	1											50	1		
NURE Seds[e]	DSSS185S1			460	1											60	1		
NURE Seds[e]	DSSS190S1			380	1											50	1		
NURE Seds[e]	DSSS192S1			390	1											80	1		
NURE Seds[e]	DSSS193S1			600	1											40	1		
NURE Seds[e]	DSSS194S1			550	1											10	0		
NURE Seds[e]	DSSS195S1			520	1											30	1		
NURE Seds[e]	DSSS197S1			710	1											50	1		
NURE Seds[e]	DSSS198S1			1290	1											50	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSSS199S1	69800	1																	29800	1
NURE Seds[e]	DSSS200S1	78900	1																	31600	1
NURE Seds[e]	DSSS204S1	73200	1																	32200	1
NURE Seds[e]	DSSS206S1	76700	1																	31800	1
NURE Seds[e]	DSSS207S1	69900	1																	30100	1
NURE Seds[e]	DSSS208S1	86600	1																	23700	1
NURE Seds[e]	DSSS210S1	62100	1																	24700	1
NURE Seds[e]	DSSS212S1	83700	1																	29600	1
NURE Seds[e]	DSSS213S1	79300	1																	25100	1
NURE Seds[e]	DSSS214S1	73100	1																	34000	1
NURE Seds[e]	DSSS216S1	72200	1																	26000	1
NURE Seds[e]	DSSS218S1	72000	1																	21500	1
NURE Seds[e]	DSSS223S1	57300	1																	26500	1
NURE Seds[e]	ONAA003S1	60847	1			4	1	232	1	1.5	1			25	1	5	1	13	1		
NURE Seds[e]	ONAA004S1	59173	1			2	1	467	1	1	1			15	1	10	1	13	1	68200	1
NURE Seds[e]	ONAA005S1	63566	1			1	1							9	1					37420	1
NURE Seds[e]	ONAA006S1	72400	1			2	1	375	1	1	1			15	1	5	0	8	1	52480	1
NURE Seds[e]	ONAA007S1	63026	1			2	1	380	1	1.5	1			10	1	5	1	16	1	50053	1
NURE Seds[e]	ONAA008S1	59973	1			1	1	260	1	1.5	1			10	1	5	1	18	1	36053	1
NURE Seds[e]	ONAA009S1	64780	1			2	1	447	1	1.5	1			5	1	5	0	4	1	33933	1
NURE Seds[e]	ONAA010S1	61686	1			1	1	227	1	1	1			25	1	5	1	5	1	62953	1
NURE Seds[e]	ONAA011S1	59040	1			1	1	257	1	1.5	1			15	1	5	0	8	1	31320	1
NURE Seds[e]	ONAA013S1																				
NURE Seds[e]	ONAA014S1	60493	1			1	1	295	1	1.5	1			5	1	5	0	7	1	21167	1
NURE Seds[e]	ONAA015S1	74733	1			2	1	335	1	1	1			85	1	5	0	11	1	54880	1
NURE Seds[e]	ONAA016S1	69466	1			2	1	352	1	1	1			10	1	5	0	5	1	25073	1
NURE Seds[e]	ONAA021S1	64486	1			4	1	475	1	2.5	1			5	1	5	1	24	1	41433	1
NURE Seds[e]	ONAA023S1	67000	1			1	1	360	1	1	1			30	1	5	1	5	1	41620	1
NURE Seds[e]	ONAA024S1	38600	1					107	1	0.5	1			10	1	12	1	22	1	29980	1
NURE Seds[e]	ONAA026S1	63313	1					357	1	1	1			265	1	5	1	9	1	40460	1
NURE Seds[e]	ONAA028S1	51713	1			2	1	172	1	1	1			410	1	25	1	32	1	56387	1
NURE Seds[e]	ONAA029S1	68333	1			2	1	357	1	0.5	1			25	1	5	1	4	1	53967	1
NURE Seds[e]	ONAA030S1	59700	1			2	1	207	1	1	1			200	1	5	1	9	1	40300	1
NURE Seds[e]	ONAA031S1	59793	1			1	1	170	1	1	1			115	1	5	1	11	1	56767	1
NURE Seds[e]	ONAA033S1	65813	1			1	1	487	1	2	1			40	1	5	0	8	1	44347	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSSS199S1			470	1											40	1		
NURE Seds[e]	DSSS200S1			790	1											60	1		
NURE Seds[e]	DSSS204S1			900	1											110	1		
NURE Seds[e]	DSSS206S1			570	1											60	1		
NURE Seds[e]	DSSS207S1			1100	1											80	1		
NURE Seds[e]	DSSS208S1			660	1											30	1		
NURE Seds[e]	DSSS210S1			680	1											30	1		
NURE Seds[e]	DSSS212S1			820	1											70	1		
NURE Seds[e]	DSSS213S1			580	1											70	1		
NURE Seds[e]	DSSS214S1			740	1											50	1		
NURE Seds[e]	DSSS216S1			1000	1											80	1		
NURE Seds[e]	DSSS218S1			450	1											40	1		
NURE Seds[e]	DSSS223S1			670	1											60	1		
NURE Seds[e]	ONAA003S1	35	1	1944	1	2	1	15	1	1	1	0.2	1			132	1	70	1
NURE Seds[e]	ONAA004S1	35	1	2730	1	4	1	22	1	1	0	0.3	1			151	1	65	1
NURE Seds[e]	ONAA005S1			1045	1	2	0			1	0					77	1		
NURE Seds[e]	ONAA006S1	25	1	1048	1	2	0	12	1	1	0	0.2	1			192	1	17	1
NURE Seds[e]	ONAA007S1	20	1	1217	1	3	1	17	1	1	0	0.3	1			193	1	18	1
NURE Seds[e]	ONAA008S1	25	1	941	1	2	0	10	1	2	1	0.2	1			90	1	27	1
NURE Seds[e]	ONAA009S1	25	1	989	1	2	1	12	1	1	0	0.1	0			96	1	15	1
NURE Seds[e]	ONAA010S1	25	1	1006	1	3	1	10	1	1	0	0.1	0			134	1	15	1
NURE Seds[e]	ONAA011S1	30	1	1013	1	2	0	7	1	1	0	0.3	1			95	1	30	1
NURE Seds[e]	ONAA013S1											0.2	1						
NURE Seds[e]	ONAA014S1	25	1	344	1	4	1	7	1	1	0	0.3	1			35	1	12	1
NURE Seds[e]	ONAA015S1	25	1	1045	1	3	1	22	1	1	0	0.3	1			208	1	22	1
NURE Seds[e]	ONAA016S1	30	1	465	1	2	0	12	1	2	1	0.2	1			67	1	20	1
NURE Seds[e]	ONAA021S1	25	1	1177	1	2	0	12	1	1	0	0.2	1			101	1	40	1
NURE Seds[e]	ONAA023S1	10	0	988	1	2	0	7	1	1	0	0.5	1			143	1	22	1
NURE Seds[e]	ONAA024S1	10	1	1062	1	2	1	17	1	1	0	0.4	1			155	1	57	1
NURE Seds[e]	ONAA026S1	10	1	999	1	2	0	22	1	1	0	0.2	1			100	1	15	1
NURE Seds[e]	ONAA028S1	10	0	1216	1	2	1	450	1	1	1	0.6	1			142	1	57	1
NURE Seds[e]	ONAA029S1	10	0	805	1	2	0	7	1	1	1	0.2	1			151	1	22	1
NURE Seds[e]	ONAA030S1	10	0	879	1	2	1	27	1	1	0	0.3	1			108	1	17	1
NURE Seds[e]	ONAA031S1	10	0	1282	1	2	0	20	1	1	1	0.4	1			228	1	22	1
NURE Seds[e]	ONAA033S1	10	1	1021	1	2	1	12	1	1	0	0.2	1			114	1	22	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAA034S1																				
NURE Seds[e]	ONAA035S1	55900	1			1	1	292	1	1	1			155	1	10	1	14	1	40727	1
NURE Seds[e]	ONAA036S1	64833	1			2	1	302	1	1.5	1			20	1	5	1	5	1	50027	1
NURE Seds[e]	ONAB004S1	50220	1			1	1	242	1	1	1			180	1	5	1	15	1	41767	1
NURE Seds[e]	ONAB005S1	48473	1			2	1	172	1	1	1			550	1	7	1	10	1		
NURE Seds[e]	ONAB006S1	31240	1			2	1	325	1	0.5	1			20	1	17	1	44	1	17920	1
NURE Seds[e]	ONAB007S1	59373	1			1	1	317	1	1	1			15	1	5	1	12	1	38253	1
NURE Seds[e]	ONAB009S1	54060	1			1	1	202	1	2	1			30	1	5	1	13	1	31060	1
NURE Seds[e]	ONAB011S1	55320	1			13	1	267	1	1	1			60	1	20	1	45	1	50127	1
NURE Seds[e]	ONAB016S1																				
NURE Seds[e]	ONAB017S1	48200	1			3	1	327	1	1.5	1			50	1	10	1	24	1	44033	1
NURE Seds[e]	ONAB018S1	32173	1			1	1	272	1	1	1			15	1	15	1	28	1	17987	1
NURE Seds[e]	ONAB019S1	58540	1			4	1	307	1	1	1			40	1	10	1	24	1	39327	1
NURE Seds[e]	ONAB020S1	56773	1			2	1	42	1	1	1			45	1	12	1	40	1	27833	1
NURE Seds[e]	ONAB021S1	58013	1			4	1	325	1	1.5	1			20	1	5	1	16	1	28060	1
NURE Seds[e]	ONAB022S1	49073	1			9	1	227	1	2	1			25	1	12	1	37	1	29827	1
NURE Seds[e]	ONAB023S1	55880	1			5	1	152	1	1	1			70	1	17	1	44	1	50593	1
NURE Seds[e]	ONAB024S1	44427	1			10	1	437	1	2	1			40	1	17	1	28	1	36733	1
NURE Seds[e]	ONAB027S1	49767	1			5	1	132	1	0.5	1			35	1	17	1	39	1	35320	1
NURE Seds[e]	ONAB028S1	37687	1			3	1	305	1	1	1			85	1	20	1	32	1	15580	1
NURE Seds[e]	ONAB031S1	55840	1			11	1	385	1	1	1			35	1	12	1	32	1	67000	1
NURE Seds[e]	ONAB032S1	55053	1			6	1	392	1	1	1			80	1	20	1	47	1	45587	1
NURE Seds[e]	ONAB033S1	40440	1					72	1	0.5	1			25	1	10	1	60	1	22580	1
NURE Seds[e]	ONAB034S1	45967	1			2	1	300	1	1.5	1			35	1	15	1	26	1	35007	1
NURE Seds[e]	ONAB035S1	33707	1			1	1	42	1	0.5	1			25	1	17	1	39	1	18380	1
NURE Seds[e]	ONAB037S1	53720	1			2	1	390	1	1.5	1			45	1	15	1	30	1	41500	1
NURE Seds[e]	ONAC001S1	59327	1			2	1	325	1	1	1			30	1	15	1	98	1	45633	1
NURE Seds[e]	ONAC002S1	53687	1			4	1	367	1	1	1			35	1	12	1	30	1	30987	1
NURE Seds[e]	ONAC003S1	55067	1			2	1	397	1	1	1			25	1	12	1	68	1	28520	1
NURE Seds[e]	ONAC006S1	53847	1			13	1	342	1	0.5	1			55	1	12	1	33	1	39280	1
NURE Seds[e]	ONAC007S1	59353	1			3	1	287	1	1	1			35	1	10	1	16	1	31347	1
NURE Seds[e]	ONAC008S1	58200	1			17	1	372	1	0.5	1			50	1	27	1	77	1	49320	1
NURE Seds[e]	ONAC009S1	49353	1			13	1	200	1	1	1			40	1	17	1	35	1	27987	1
NURE Seds[e]	ONAC016S1	50727	1					245	1	1	1			15	1	5	0	8	1	28833	1
NURE Seds[e]	ONAC017S1	57560	1			1	1	287	1	1	1			25	1	5	1	8	1	27247	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAA034S1											0.3	1						
NURE Seds[e]	ONAA035S1	15	1	1633	1	2	0	55	1	1	0	0.4	1			186	1	25	1
NURE Seds[e]	ONAA036S1	10	1	1346	1	2	0	10	1	1	0	0.3	1			133	1	30	1
NURE Seds[e]	ONAB004S1	15	1	793	1	2	0	10	1	1	0	0.2	1			100	1	22	1
NURE Seds[e]	ONAB005S1	10	1	971	1	3	1	57	1	1	1	0.1	1			126	1	20	1
NURE Seds[e]	ONAB006S1	10	0	419	1	2	0	25	1	1	0	1.6	1			53	1	37	1
NURE Seds[e]	ONAB007S1	10	0	946	1	2	1	10	1	1	0	0.3	1			92	1	32	1
NURE Seds[e]	ONAB009S1	15	1	597	1	2	0	12	1	1	0	0.3	1			99	1	17	1
NURE Seds[e]	ONAB011S1	10	1	1419	1	2	0	35	1	1	1	0.9	1			157	1	122	1
NURE Seds[e]	ONAB016S1											0.2	1						
NURE Seds[e]	ONAB017S1	25	1	1259	1	2	0	22	1	1	0	0.4	1			155	1	62	1
NURE Seds[e]	ONAB018S1	15	1	459	1	2	0	25	1	1	1	1.6	1			46	1	42	1
NURE Seds[e]	ONAB019S1	10	0	734	1	2	0	20	1	2	1	0.3	1			90	1	45	1
NURE Seds[e]	ONAB020S1	10	1	481	1	2	1	25	1	1	0	0.5	1			93	1	82	1
NURE Seds[e]	ONAB021S1	10	0	578	1	2	1	12	1	1	0	0.2	1			50	1	42	1
NURE Seds[e]	ONAB022S1	10	0	616	1	2	0	15	1	1	1	0.9	1			65	1	62	1
NURE Seds[e]	ONAB023S1	15	1	1071	1	2	0	25	1	1	0	0.4	1			156	1	35	1
NURE Seds[e]	ONAB024S1	10	1	814	1	2	1	22	1	1	0	1.3	1			117	1	47	1
NURE Seds[e]	ONAB027S1	10	0	880	1	2	0	27	1	1	0	0.6	1			100	1	120	1
NURE Seds[e]	ONAB028S1	15	1	373	1	2	0	40	1	1	0	0.6	1			43	1	85	1
NURE Seds[e]	ONAB031S1	10	0	1300	1	2	1	15	1	1	0	0.8	1			186	1	40	1
NURE Seds[e]	ONAB032S1	10	0	929	1	2	0	37	1	1	0	0.7	1			124	1	45	1
NURE Seds[e]	ONAB033S1	10	1	502	1	2	0	22	1	1	0	0.4	1			45	1	52	1
NURE Seds[e]	ONAB034S1	10	0			2	0	25	1	1	0	0.9	1			78	1	72	1
NURE Seds[e]	ONAB035S1	15	1	358	1	2	0	30	1	1	0	1.1	1			24	1	40	1
NURE Seds[e]	ONAB037S1	15	1	1226	1	2	0	22	1	1	0	0.6	1			144	1	50	1
NURE Seds[e]	ONAC001S1	10	1	1279	1	2	0	17	1	1	0	0.7	1			157	1	50	1
NURE Seds[e]	ONAC002S1	10	1	535	1	2	0	22	1	1	1	0.5	1			72	1	45	1
NURE Seds[e]	ONAC003S1	10	1	1807	1	2	1	20	1	1	1	0.4	1			98	1	47	1
NURE Seds[e]	ONAC006S1	10	0	929	1	2	1	22	1	1	0	0.5	1			152	1	47	1
NURE Seds[e]	ONAC007S1	10	0	603	1	2	1	15	1	1	0	0.1	1			77	1	70	1
NURE Seds[e]	ONAC008S1	10	1	1245	1	2	1	45	1	1	0	0.7	1			161	1	127	1
NURE Seds[e]	ONAC009S1	15	1	745	1	5	1	30	1	1	0	0.9	1			127	1	65	1
NURE Seds[e]	ONAC016S1	15	1	576	1	2	0	12	1	2	1	0.2	1			69	1	25	1
NURE Seds[e]	ONAC017S1	20	1	527	1	3	1	12	1	1	1	0.1	1			66	1	22	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAC018S1	49533	1			1	1	112	1	1	1			15	1	5	1	12	1	18787	1
NURE Seds[e]	ONAC019S1	52940	1			5	1	267	1	1	1			35	1	5	1	9	1	24653	1
NURE Seds[e]	ONAC020S1	39833	1					75	1	0.5	1			10	1	5	0	101	1	12220	1
NURE Seds[e]	ONAC021S1	56633	1			2	1	270	1	1	1			20	1	5	1	11	1	17980	1
NURE Seds[e]	ONAC022S1	59733	1			3	1	317	1	1	1			25	1	5	1	12	1	24820	1
NURE Seds[e]	ONAC023S1	58113	1					197	1	1	1			15	1	5	0	5	1	16420	1
NURE Seds[e]	ONAC024S1	58773	1			3	1	332	1	1	1			25	1	5	1	7	1	26407	1
NURE Seds[e]	ONAC025S1																				
NURE Seds[e]	ONAC026S1	52080	1			2	1	307	1	1	1			65	1	7	1	15	1	39273	1
NURE Seds[e]	ONAC028S1	63280	1			7	1	275	1	1.5	1			40	1	12	1	29	1	33587	1
NURE Seds[e]	ONAC030S1	55607	1					375	1	1	1			75	1	7	1	9	1	42313	1
NURE Seds[e]	ONAC031S1	58527	1					500	1	1.5	1			35	1	5	1	6	1	23533	1
NURE Seds[e]	ONAC032S1	50140	1			4	1	467	1	0.5	1			105	1	5	1	18	1	35767	1
NURE Seds[e]	ONAC033S1	48100	1					295	1	1	1			40	1	5	1	10	1	25813	1
NURE Seds[e]	ONAC034S1	57980	1					420	1	1	1			30	1	5	0	6	1	19713	1
NURE Seds[e]	ONAC035S1	54127	1			1	1	305	1	1	1			35	1	5	1	10	1	21020	1
NURE Seds[e]	ONAC037S1																				
NURE Seds[e]	ONAD001S1	58080	1			1	1	532	1	0.5	1			35	1	7	1	15	1	26480	1
NURE Seds[e]	ONAD002S1	43467	1			1	1	170	1	1.5	1			75	1	15	1	39	1	28380	1
NURE Seds[e]	ONAD003S1	53267	1			4	1	512	1	1.5	1			125	1	7	1	7	1	27607	1
NURE Seds[e]	ONAD004S1	49553	1			4	1	147	1	1	1			30	1	12	1	20	1	26240	1
NURE Seds[e]	ONAD005S1	52413	1			4	1	352	1	1	1			30	1	12	1	22	1	26007	1
NURE Seds[e]	ONAD006S1	55193	1			11	1	382	1	0.5	1			65	1	17	1	32	1	33353	1
NURE Seds[e]	ONAD007S1	55107	1			9	1	350	1	2	1			90	1	20	1	38	1	44247	1
NURE Seds[e]	ONAD008S1	57720	1			1	1	502	1	1	1			70	1	15	1	37	1	38160	1
NURE Seds[e]	ONAD009S1	48573	1			9	1	352	1	1	1			35	1	12	1	28	1	17233	1
NURE Seds[e]	ONAD011S1	40733	1			1	1	320	1	0.5	1			40	1	15	1	29	1	18560	1
NURE Seds[e]	ONAD013S1	53893	1			1	1	532	1	1	1			45	1	10	1	17	1	29840	1
NURE Seds[e]	ONAD014S1	50620	1			5	1	430	1	1	1			45	1	10	1	24	1	27467	1
NURE Seds[e]	ONAD015S1	65940	1			1	1	522	1	1.5	1			15	1	5	1	2	0	10393	1
NURE Seds[e]	ONAD016S1	59073	1			5	1	400	1	1	1			45	1	10	1	13	1	28067	1
NURE Seds[e]	ONAD018S1	53513	1			1	1	500	1	0.5	1			50	1	5	1	25	1	23687	1
NURE Seds[e]	ONAD019S1	47753	1			3	1	607	1	1	1			35	1	7	1	18	1	28240	1
NURE Seds[e]	ONAD021S1	49747	1					305	1	1	1			30	1	5	1	20	1	24460	1
NURE Seds[e]	ONAD022S1																				

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAC018S1	10	0	284	1	2	0	10	1	1	1	0.1	1			31	1	25	1
NURE Seds[e]	ONAC019S1	15	1	515	1	4	1	12	1	1	1	0.3	1			74	1	25	1
NURE Seds[e]	ONAC020S1	10	1	199	1	2	0	30	1	1	0	0.1	1			22	1	7	1
NURE Seds[e]	ONAC021S1	10	1	473	1	2	0	15	1	1	1	0.3	1			34	1	35	1
NURE Seds[e]	ONAC022S1	10	1	404	1	2	0	12	1	1	0	0.4	1			40	1	15	1
NURE Seds[e]	ONAC023S1	10	1	389	1	2	0	10	1	1	0	0.1	0			44	1	17	1
NURE Seds[e]	ONAC024S1	20	1	594	1	4	1	10	1	1	0	0.2	1			72	1	20	1
NURE Seds[e]	ONAC025S1											0.2	1						
NURE Seds[e]	ONAC026S1	15	1	959	1	2	0	15	1	1	0	0.1	1			104	1	40	1
NURE Seds[e]	ONAC028S1	10	0	925	1	2	0	25	1	1	0	0.5	1			111	1	62	1
NURE Seds[e]	ONAC030S1	10	0	1035	1	2	0	12	1	1	0	0.4	1			112	1	25	1
NURE Seds[e]	ONAC031S1	10	0	591	1	2	0	10	1	1	0	0.5	1			53	1	12	1
NURE Seds[e]	ONAC032S1	10	0	910	1	2	0	15	1	1	0	0.5	1			114	1	15	1
NURE Seds[e]	ONAC033S1	10	0	554	1	2	1	15	1	1	1	0.7	1			74	1	22	1
NURE Seds[e]	ONAC034S1	15	1	399	1	2	0	10	1	1	1	0.4	1			38	1	10	1
NURE Seds[e]	ONAC035S1	10	1	545	1	3	1	15	1	1	1	0.5	1			59	1	27	1
NURE Seds[e]	ONAC037S1											0.4	1						
NURE Seds[e]	ONAD001S1	10	0	643	1	2	1	15	1	1	0	0.4	1			80	1	30	1
NURE Seds[e]	ONAD002S1	10	1	399	1	2	0	77	1	1	0	0.7	1			90	1	85	1
NURE Seds[e]	ONAD003S1	10	0	701	1	2	1	20	1	1	0	0.4	1			93	1	35	1
NURE Seds[e]	ONAD004S1	15	1	520	1	2	0	37	1	1	1	0.9	1			69	1	35	1
NURE Seds[e]	ONAD005S1	10	1	667	1	2	0	30	1	1	0	0.6	1			82	1	65	1
NURE Seds[e]	ONAD006S1	15	1	898	1	3	1	35	1	1	0	0.5	1			74	1	52	1
NURE Seds[e]	ONAD007S1	10	1	1095	1	3	1	55	1	1	0	0.7	1			120	1	77	1
NURE Seds[e]	ONAD008S1	10	1	1010	1	2	0	40	1	1	0	0.5	1			99	1	45	1
NURE Seds[e]	ONAD009S1	10	0	660	1	2	0	25	1	1	1	0.5	1			45	1	47	1
NURE Seds[e]	ONAD011S1	10	0	466	1	2	1	30	1	1	0	1.4	1			53	1	55	1
NURE Seds[e]	ONAD013S1	10	0	581	1	2	1	20	1	1	0	0.4	1			78	1	45	1
NURE Seds[e]	ONAD014S1	15	1	819	1	3	1	27	1	1	0	0.4	1			94	1	37	1
NURE Seds[e]	ONAD015S1	10	0	218	1	2	0	5	1	1	1	0.1	1			20	1	15	1
NURE Seds[e]	ONAD016S1	10	1	1095	1	2	1	22	1	1	1	0.5	1			74	1	52	1
NURE Seds[e]	ONAD018S1	10	0	374	1	2	0	17	1	1	0	0.4	1			52	1	27	1
NURE Seds[e]	ONAD019S1	10	1	688	1	2	0	20	1	1	0	0.3	1			106	1	30	1
NURE Seds[e]	ONAD021S1	10	0	473	1	2	0	17	1	1	0	0.3	1			50	1	27	1
NURE Seds[e]	ONAD022S1											0.8	1						

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAD023S1	24347	1			5	1	310	1	0.5	0			25	1	20	1	26	1	17840	1
NURE Seds[e]	ONAD024S1	53367	1			10	1	542	1	1	1			65	1	10	1	21	1	29840	1
NURE Seds[e]	ONAD027S1	53313	1			2	1	470	1	1.5	1			110	1	10	1	15	1	34753	1
NURE Seds[e]	ONAD028S1	51867	1			6	1	152	1	1	1			65	1	7	1	19	1	27420	1
NURE Seds[e]	ONAD029S1	55580	1					522	1	1	1			35	1	5	1	18	1	21760	1
NURE Seds[e]	ONAD030S1	44827	1			14	1	462	1	1	1			110	1	12	1	24	1	44573	1
NURE Seds[e]	ONAD031S1	52813	1			12	1	537	1	1	1			35	1	7	1	14	1	26620	1
NURE Seds[e]	ONAD033S1	62307	1			7	1	747	1	2	1			65	1	17	1	26	1	41947	1
NURE Seds[e]	ONAD034S1	52860	1			1	1	417	1	2	1			30	1	5	1	5	1	17913	1
NURE Seds[e]	ONAD035S1	49093	1			1	1	90	1	2	1			15	1	5	0	92	1	18040	1
NURE Seds[e]	ONAE001S1	60113	1			1	1	500	1	2	1			35	1	5	1	12	1	30760	1
NURE Seds[e]	ONAE002S1	61306	1			14	1	597	1	2	1			50	1	7	1	17	1	31667	1
NURE Seds[e]	ONAE004S1	49960	1			2	1	257	1	2.5	1			50	1	7	1	20	1	30207	1
NURE Seds[e]	ONAE005S1	50707	1			2	1	300	1	2	1			30	1	5	1	17	1	23467	1
NURE Seds[e]	ONAE006S1	57773	1			4	1	445	1	2.5	1			55	1	12	1	20	1	35793	1
NURE Seds[e]	ONAE007S1	61233	1			4	1	520	1	1.5	1			75	1	10	1	13	1	29767	1
NURE Seds[e]	ONAE008S1	60613	1			1	1	600	1	1	1			70	1	5	1	13	1	30873	1
NURE Seds[e]	ONAE010S1																				
NURE Seds[e]	ONAE011S1	57133	1			4	1	232	1	1.5	1			20	1	10	1	30	1	29967	1
NURE Seds[e]	ONAE012S1	59747	1			1	1	292	1	1	1			25	1	7	1	22	1	23613	1
NURE Seds[e]	ONAE013S1	53147	1			2	1	450	1	0.5	1			75	1	5	1	7	1	25973	1
NURE Seds[e]	ONAE014S1	59667	1			3	1	265	1	1	1			10	1	5	1	8	1	18947	1
NURE Seds[e]	ONAE016S1	63600	1			1	1	597	1	0.5	1			35	1	7	1	15	1	23340	1
NURE Seds[e]	ONAE021S1	58753	1			1	1	305	1	1	1			25	1	5	0	20	1	19520	1
NURE Seds[e]	ONAE024S1	69333	1			1	1	247	1	1	1			35	1	7	1	9	1	54187	1
NURE Seds[e]	ONAE025S1	52160	1			3	1	455	1	0.5	1			15	1	7	1	21	1	25013	1
NURE Seds[e]	ONAE026S1	47987	1			2	1	172	1	1	1			15	1	10	1	37	1	15867	1
NURE Seds[e]	ONAE030S1	56927	1			1	1	400	1	1	1			30	1	5	1	15	1	29213	1
NURE Seds[e]	ONAE033S1	57413	1			1	1	425	1	1.5	1			40	1	5	1	9	1	30053	1
NURE Seds[e]	ONAE037S1	59353	1					572	1	1	1			85	1	5	1	7	1	50753	1
NURE Seds[e]	ONAF002S1	82666	1					270	1	0.5	0			60	1	5	0	17	1	49080	1
NURE Seds[e]	ONAF003S1	55147	1			1	1	525	1	0.5	1			140	1	7	1	21	1	37693	1
NURE Seds[e]	ONAF004S1	51820	1			1	1	180	1	1	1			160	1	10	1	35	1	26240	1
NURE Seds[e]	ONAF005S1	53233	1			1	1	412	1	1	1			470	1	10	1	17	1	51373	1
NURE Seds[e]	ONAF006S1	54647	1					330	1	1	1			900	1	15	1	24	1	30673	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAD023S1	10	0	456	1	2	1	35	1	1	0	1.9	1			24	1	37	1
NURE Seds[e]	ONAD024S1	15	1	816	1	5	1	27	1	1	0	0.3	1			75	1	45	1
NURE Seds[e]	ONAD027S1	10	1	1255	1	2	0	22	1	1	0	0.5	1			104	1	32	1
NURE Seds[e]	ONAD028S1	10	1	675	1	2	0	20	1	1	0	0.3	1			76	1	17	1
NURE Seds[e]	ONAD029S1	10	0	388	1	3	1	17	1	1	0	0.3	1			67	1	15	1
NURE Seds[e]	ONAD030S1	10	0	837	1	2	0	25	1	1	1	0.6	1			110	1	40	1
NURE Seds[e]	ONAD031S1	10	0	1991	1	2	0	17	1	1	0	0.3	1			81	1	37	1
NURE Seds[e]	ONAD033S1	10	0	644	1	3	1	37	1	1	1	0.8	1			119	1	67	1
NURE Seds[e]	ONAD034S1	10	0	494	1	2	1	12	1	1	1	0.3	1			49	1	27	1
NURE Seds[e]	ONAD035S1	10	1	375	1	2	0	20	1	4	1	0.5	1			47	1	25	1
NURE Seds[e]	ONAE001S1	10	1	557	1	3	1	15	1	2	1	0.6	1			96	1	32	1
NURE Seds[e]	ONAE002S1	10	0	554	1	2	0	17	1	2	1	0.5	1			77	1	37	1
NURE Seds[e]	ONAE004S1	10	0	516	1	2	0	15	1	1	0	0.4	1			94	1	27	1
NURE Seds[e]	ONAE005S1	15	1	571	1	3	1	12	1	1	1	0.6	1			68	1	20	1
NURE Seds[e]	ONAE006S1	15	1	666	1	2	0			1	1	0.6	1			76	1	57	1
NURE Seds[e]	ONAE007S1	10	0	700	1	2	1	25	1	2	1	0.2	1			111	1	42	1
NURE Seds[e]	ONAE008S1	10	1	657	1	2	0	12	1	1	1	0.3	1			152	1	25	1
NURE Seds[e]	ONAE010S1											0.6	1						
NURE Seds[e]	ONAE011S1	10	1	1025	1	2	1	17	1	3	1	0.7	1			60	1	75	1
NURE Seds[e]	ONAE012S1	10	0	655	1	3	1	15	1	1	1	0.4	1			88	1	40	1
NURE Seds[e]	ONAE013S1	15	1	463	1	4	1	15	1	1	0	0.4	1			76	1	25	1
NURE Seds[e]	ONAE014S1	10	0	763	1	2	1	7	1	1	0	0.3	1			56	1	40	1
NURE Seds[e]	ONAE016S1	10	1	707	1	2	1	5	1	1	0	0.4	1			91	1	32	1
NURE Seds[e]	ONAE021S1	10	1	410	1	2	0	10	1	2	1	0.3	1			57	1	27	1
NURE Seds[e]	ONAE024S1	10	1	906	1	4	1	15	1	1	1	0.1	1			170	1	32	1
NURE Seds[e]	ONAE025S1	10	0	472	1	3	1	20	1	2	1	0.3	1			114	1	42	1
NURE Seds[e]	ONAE026S1	10	0	367	1	2	0	15	1	1	0	1.1	1			47	1	40	1
NURE Seds[e]	ONAE030S1	10	0	671	1	2	0	20	1	1	0	0.4	1			106	1	27	1
NURE Seds[e]	ONAE033S1	10	1	564	1	3	1	17	1	1	1	0.2	1			99	1	22	1
NURE Seds[e]	ONAE037S1	10	0	957	1	2	0	17	1	1	0	0.5	1			206	1	35	1
NURE Seds[e]	ONAF002S1	10	0	1159	1	2	0	12	1	1	0	0.4	1			148	1	17	1
NURE Seds[e]	ONAF003S1	10	0	671	1	2	0	22	1	1	1	0.5	1			129	1	45	1
NURE Seds[e]	ONAF004S1	10	0	586	1	2	0	50	1	1	0	0.8	1			73	1	42	1
NURE Seds[e]	ONAF005S1	10	0	915	1	2	0	25	1	1	0	0.5	1			108	1	32	1
NURE Seds[e]	ONAF006S1	10	0	564	1	2	0	75	1	1	0	0.6	1			113	1	40	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAF007S1	54333	1			2	1	220	1	1	1			1250	1	12	1	31	1	49840	1
NURE Seds[e]	ONAF008S1	49527	1			10	1	377	1	1.5	1			1200	1	12	1	28	1	44700	1
NURE Seds[e]	ONAF010S1	41640	1					152	1	0.5	1			550	1	15	1	37	1	31813	1
NURE Seds[e]	ONAF012S1	58273	1			1	1	325	1	1.5	1			130	1	5	1	11	1		
NURE Seds[e]	ONAF013S1	60387	1			2	1	447	1	1.5	1			70	1	7	1	12	1	24527	1
NURE Seds[e]	ONAF014S1	49207	1			2	1	367	1	1	1			190	1	7	1	8	1	47160	1
NURE Seds[e]	ONAF015S1	55540	1					232	1	1.5	1			30	1	12	1	15	1	22687	1
NURE Seds[e]	ONAF016S1	68266	1					277	1	1.5	1			25	1	10	1	13	1	32173	1
NURE Seds[e]	ONAF017S1	61353	1					477	1	1	1			30	1	10	1	12	1	31433	1
NURE Seds[e]	ONAF019S1	50067	1					247	1	1.5	1			85	1	10	1	7	1	54640	1
NURE Seds[e]	ONAF020S1	54527	1					300	1	2	1			325	1	12	1	6	1	55233	1
NURE Seds[e]	ONAF021S1	50340	1			2	1	222	1	1	1			360	1	5	1	9	1	29540	1
NURE Seds[e]	ONAF022S1	56373	1					535	1	1.5	1			100	1	5	1	9	1	19540	1
NURE Seds[e]	ONAF025S1	56487	1					502	1	0.5	1			145	1	7	1	16	1	31693	1
NURE Seds[e]	ONAF026S1	52687	1					290	1	1	1			70	1	5	1	5	1	23393	1
NURE Seds[e]	ONAF027S1	52227	1			8	1							50	1					40113	1
NURE Seds[e]	ONAF029S1	54700	1			1	1	247	1	0.5	1			50	1	5	0	13	1	22300	1
NURE Seds[e]	ONAF030S1	58860	1			4	1	387	1	1	1			85	1	10	1	18	1	35247	1
NURE Seds[e]	ONAF031S1	53687	1			1	1	272	1	1	1			45	1	10	1	32	1	23393	1
NURE Seds[e]	ONAF032S1	59460	1			3	1	300	1	2	1			65	1	7	1	28	1	36953	1
NURE Seds[e]	ONAF033S1	59560	1			1	1	162	1	2.5	1			40	1	5	1	8	1	24953	1
NURE Seds[e]	ONAF034S1	51600	1					192	1	2	1			125	1	5	1	9	1	41693	1
NURE Seds[e]	ONAF036S1	53200	1			10	1	392	1	1	1			1000	1	7	1	18	1	32233	1
NURE Seds[e]	ONAF037S1	50853	1			14	1	372	1	0.5	1			1300	1	5	1	32	1	54847	1
NURE Seds[e]	ONAF038S1																				
NURE Seds[e]	ONAG001S1	40667	1			12	1	35	1	1	1			105	1	15	1	38	1		
NURE Seds[e]	ONAG002S1	52567	1			2	1	240	1	1.5	1			45	1	10	1	14	1	33613	1
NURE Seds[e]	ONAG006S1	56953	1					247	1	1.5	1			105	1	12	1	12	1	25367	1
NURE Seds[e]	ONAG007S1	60167	1					400	1	1	1			125	1	5	1	5	1	19147	1
NURE Seds[e]	ONAG008S1	59047	1					382	1	2.5	1			160	1	7	1	5	1	13093	1
NURE Seds[e]	ONAG011S1	54867	1					172	1	2	1			15	1	5	0	3	1	16667	1
NURE Seds[e]	ONAG012S1	61920	1					472	1	3.5	1			25	1	5	0	3	1	24747	1
NURE Seds[e]	ONAG013S1	69133	1					500	1	2.5	1			25	1	5	0	2	1	23360	1
NURE Seds[e]	ONAG015S1	70466	1					377	1	3	1			15	1	5	1	4	1	24840	1
NURE Seds[e]	ONAG016S1	69066	1					682	1	2.5	1			15	1	5	0	2	1	25347	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAF007S1	10	0	925	1	2	0	90	1	1	1	0.6	1			152	1	40	1
NURE Seds[e]	ONAF008S1	10	0	900	1	2	0	67	1	1	1	0.7	1			178	1	47	1
NURE Seds[e]	ONAF010S1	10	1	590	1	2	0	450	1	1	1	1.2	1			72	1	30	1
NURE Seds[e]	ONAF012S1	10	1	866	1	2	0	30	1	1	0	0.5	1			78	1	40	1
NURE Seds[e]	ONAF013S1	10	0	457	1	2	0	42	1	1	0	0.4	1			53	1	67	1
NURE Seds[e]	ONAF014S1	10	0	860	1	2	0	25	1	1	1	0.2	1			165	1	27	1
NURE Seds[e]	ONAF015S1	10	1	771	1	2	0	15	1	1	1	0.5	1			31	1	42	1
NURE Seds[e]	ONAF016S1	15	1	727	1	2	0	12	1	1	0	0.3	1			95	1	42	1
NURE Seds[e]	ONAF017S1	10	1	634	1	2	0	15	1	1	1	0.3	1			95	1	27	1
NURE Seds[e]	ONAF019S1	10	1	969	1	2	0	12	1	1	0	0.3	1			140	1	17	1
NURE Seds[e]	ONAF020S1	10	0	819	1	2	0	17	1	1	0	0.5	1			169	1	25	1
NURE Seds[e]	ONAF021S1	15	1	487	1	2	0	42	1	1	0	0.8	1			93	1	25	1
NURE Seds[e]	ONAF022S1	10	1	326	1	2	0	22	1	1	0	0.3	1			43	1	17	1
NURE Seds[e]	ONAF025S1	10	1	563	1	2	0	30	1	1	0	0.3	1			75	1	32	1
NURE Seds[e]	ONAF026S1	10	1	350	1	2	1	15	1	1	1	0.2	1			64	1	25	1
NURE Seds[e]	ONAF027S1			933	1	12	1			1	0					132	1		
NURE Seds[e]	ONAF029S1	10	1	515	1	2	1	15	1	1	0	0.1	1			91	1	30	1
NURE Seds[e]	ONAF030S1	10	0	683	1	2	0	17	1	1	1	0.2	1			92	1	47	1
NURE Seds[e]	ONAF031S1	10	0	473	1	2	0	20	1	1	0	0.3	1			54	1	37	1
NURE Seds[e]	ONAF032S1	10	0	795	1	2	1	17	1	1	0	0.4	1			137	1	52	1
NURE Seds[e]	ONAF033S1	10	0	528	1	2	1	15	1	1	1	0.1	1			67	1	22	1
NURE Seds[e]	ONAF034S1	10	1	852	1	2	0	15	1	1	0	0.2	1			162	1	22	1
NURE Seds[e]	ONAF036S1	15	1	675	1	2	0	90	1	1	0	0.2	1			105	1	32	1
NURE Seds[e]	ONAF037S1	10	0	883	1	2	0	118	1	1	0	0.3	1			155	1	47	1
NURE Seds[e]	ONAF038S1											0.2	1						
NURE Seds[e]	ONAG001S1	10	0	567	1	2	0	67	1	1	1	0.4	1			85	1	82	1
NURE Seds[e]	ONAG002S1	10	0	667	1	2	0	12	1	1	0	0.3	1			130	1	52	1
NURE Seds[e]	ONAG006S1	15	1	575	1	2	0	37	1	1	1	0.3	1			40	1	32	1
NURE Seds[e]	ONAG007S1	10	1	330	1	2	0	10	1	1	0	0.1	0			52	1	17	1
NURE Seds[e]	ONAG008S1	10	1	272	1	2	1	7	1	2	1	0.1	0			33	1	17	1
NURE Seds[e]	ONAG011S1	10	0	418	1	2	1	5	1	3	1	0.1	1			27	1	12	1
NURE Seds[e]	ONAG012S1	10	0	671	1	2	0	10	1	1	1	0.1	0					17	1
NURE Seds[e]	ONAG013S1	10	1	618	1	2	0	5	1	1	1	0.1	1			68	1	15	1
NURE Seds[e]	ONAG015S1	15	1	580	1	3	1	10	1	2	1	0.1	0			40	1	12	1
NURE Seds[e]	ONAG016S1	10	1	445	1	2	1	10	1	1	0	0.1	0			56	1	12	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAG018S1	66040	1					367	1	2.5	1			35	1	5	1	3	1	24453	1
NURE Seds[e]	ONAG020S1	66866	1			1	1	612	1	1.5	1			30	1	7	1	3	1	20980	1
NURE Seds[e]	ONAG021S1	62206	1					245	1	1.5	1			25	1	7	1	5	1	27553	1
NURE Seds[e]	ONAG023S1	47840	1					240	1	2	1			70	1	7	1	5	1	37587	1
NURE Seds[e]	ONAH007S1																				
NURE Seds[e]	ONAH009S1	30100	1			11	1	1047	1	1	1			145	1	7	1	12	1	20667	1
NURE Seds[e]	ONAH012S1	50160	1			1	1	542	1	1.5	1			70	1	15	1	18	1	24580	1
NURE Seds[e]	ONAH015S1	52847	1			2	1	190	1	2.5	1			90	1	7	1	10	1	58493	1
NURE Seds[e]	ONAH018S1	52833	1			1	1	282	1	2	1			80	1	15	1	28	1	43627	1
NURE Seds[e]	ONAH021S1	55173	1			1	1	550	1	1.5	1			385	1	7	1	6	1	84200	1
NURE Seds[e]	ONAH022S1	16587	1			1	1	382	1	0.5	0			50	1	15	1	58	1	9407	1
NURE Seds[e]	ONAH023S1	53653	1			5	1	200	1	1	1			305	1	30	1	64	1	45873	1
NURE Seds[e]	ONAH024S1	43233	1					282	1	1.5	1			95	1	5	1	21	1	35353	1
NURE Seds[e]	ONAH026S1	73066	1					600	1	1	1			50	1	10	1	7	1	42893	1
NURE Seds[e]	ONAH027S1	8873	1					287	1	0.5	1			10	1	7	1	16	1	4460	1
NURE Seds[e]	ONAH028S1	30440	1					357	1	0.5	1			175	1	7	1	24	1	22920	1
NURE Seds[e]	ONAH032S1	55933	1					252	1	1.5	1			115	1	15	1	25	1	41073	1
NURE Seds[e]	ONAH033S1	55453	1			1	1	297	1	1.5	1			170	1	5	0	22	1	31713	1
NURE Seds[e]	ONAH035S1	59933	1			1	1	485	1	2	1			255	1	7	1	12	1	43660	1
NURE Seds[e]	ONAH036S1	59407	1			1	1	190	1	0.5	1			120	1	10	1	19	1	34887	1
NURE Seds[e]	ONAH038S1	32573	1					230	1	1.5	1			30	1	5	0	9	1	15613	1
NURE Seds[e]	ONBA004S1	60253	1					277	1	5.1	1			20	1	5	0	2	1	28227	1
NURE Seds[e]	ONBA005S1	65547	1																	83400	1
NURE Seds[e]	ONBA006S1	60100	1					357	1	1	1			45	1	7	1	4	1	91133	1
NURE Seds[e]	ONBA007S1	66666	1					460	1	1.5	1			30	1	5	1	5	1	92533	1
NURE Seds[e]	ONBA010S1	59287	1					342	1	1.5	1			25	1	5	0	10	1	47273	1
NURE Seds[e]	ONBA011S1	63033	1			2	1	635	1	2.5	1			20	1	7	1	17	1	25020	1
NURE Seds[e]	ONBA013S1	60453	1			1	1	375	1	2	1			25	1	7	1	18	1	40467	1
NURE Seds[e]	ONBA015S1	55540	1					232	1	1	1			20	1	5	0	8	1	46940	1
NURE Seds[e]	ONBA016S1	63553	1			1	1	250	1	0.5	1			20	1	5	0	8	1	54633	1
NURE Seds[e]	ONBA017S1	65813	1			6	1	290	1	1	1			25	1	5	1	9	1	56027	1
NURE Seds[e]	ONBA019S1	67200	1					482	1	0.5	1			20	1	5	0	7	1	50193	1
NURE Seds[e]	ONBA027S1	65593	1					402	1	1.5	1			15	1	5	1	4	1	41867	1
NURE Seds[e]	ONBA029S1	61887	1					485	1	1.5	1			10	1	5	1	5	1	85466	1
NURE Seds[e]	ONBA030S1	62113	1					470	1	2.5	1			15	1	5	0	4	1	85866	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAG018S1	10	0	503	1	2	0	7	1	1	1	0.1	0			54	1	17	1
NURE Seds[e]	ONAG020S1	15	1	478	1	2	1	7	1	1	0	0.1	0			65	1	12	1
NURE Seds[e]	ONAG021S1	10	1	385	1	2	0	10	1	1	0	0.1	0			60	1	25	1
NURE Seds[e]	ONAG023S1	10	0	802	1	2	0	7	1	1	1	0.1	0			64	1	15	1
NURE Seds[e]	ONAH007S1											0.2	1						
NURE Seds[e]	ONAH009S1	10	1	1472	1	3	1	25	1	1	0	2	1			70	1	27	1
NURE Seds[e]	ONAH012S1	10	0	580	1	2	1	25	1	1	1	0.6	1			70	1	37	1
NURE Seds[e]	ONAH015S1	10	1	805	1	3	1	12	1	1	0	0.3	1			151	1	42	1
NURE Seds[e]	ONAH018S1	15	1	1017	1	2	1	47	1	1	0	0.6	1			91	1	92	1
NURE Seds[e]	ONAH021S1	15	1	1347	1	2	1	45	1	1	0	0.3	1			323	1	17	1
NURE Seds[e]	ONAH022S1	15	1	355	1	2	1	122	1	1	0	2.6	1			26	1	27	1
NURE Seds[e]	ONAH023S1	25	1	1353	1	3	1	207	1	1	0	0.7	1			137	1	70	1
NURE Seds[e]	ONAH024S1	25	1	749	1	2	1	55	1	1	0	0.3	1			72	1	52	1
NURE Seds[e]	ONAH026S1	10	1	616	1	2	0	15	1	1	0	0.6	1			139	1	37	1
NURE Seds[e]	ONAH027S1	25	1			2	1	25	1	1	0	3	1			19	1	12	1
NURE Seds[e]	ONAH028S1	20	1	342	1	3	1	85	1	2	1	2.1	1			61	1	20	1
NURE Seds[e]	ONAH032S1	15	1	888	1	2	1	147	1	7	1	0.5	1			99	1	47	1
NURE Seds[e]	ONAH033S1	10	1	829	1	2	1	45	1	1	0	0.3	1			143	1	32	1
NURE Seds[e]	ONAH035S1	15	1	851	1	2	0	55	1	1	0	0.4	1			95	1	40	1
NURE Seds[e]	ONAH036S1	20	1	807	1	3	1	40	1	1	1	0.5	1			121	1	40	1
NURE Seds[e]	ONAH038S1	25	1	585	1	2	0	12	1	1	0	1.3	1			60	1	27	1
NURE Seds[e]	ONBA004S1	10	1	741	1	2	0	5	1	1	0	0.1	0			75	1	10	1
NURE Seds[e]	ONBA005S1			960	1											167	1		
NURE Seds[e]	ONBA006S1	10	1	1407	1	2	1	7	1	1	0	0.1	0			359	1	22	1
NURE Seds[e]	ONBA007S1	10	1	979	1	2	0	10	1	1	0	0.2	1			237	1	22	1
NURE Seds[e]	ONBA010S1	10	1	1347	1	4	1	7	1	1	0	0.2	1			171	1	62	1
NURE Seds[e]	ONBA011S1	10	1	861	1	3	1	5	1	1	0	0.5	1			104	1	60	1
NURE Seds[e]	ONBA013S1	10	1	924	1	2	0	17	1	1	0	0.3	1			127	1	60	1
NURE Seds[e]	ONBA015S1	10	0	765	1	2	1	5	1	1	0	0.2	1			139	1	20	1
NURE Seds[e]	ONBA016S1	10	1	764	1	2	0	10	1	1	0	0.3	1			167	1	17	1
NURE Seds[e]	ONBA017S1	15	1	976	1	2	0	7	1	1	1	0.3	1			166	1	32	1
NURE Seds[e]	ONBA019S1	10	1	871	1	2	0	5	1	1	1	0.3	1			137	1	25	1
NURE Seds[e]	ONBA027S1	10	0	911	1	2	0	5	1	1	0	0.3	1			110	1	30	1
NURE Seds[e]	ONBA029S1	10	1	1089	1	2	0	5	1	1	0	0.3	1			175	1	30	1
NURE Seds[e]	ONBA030S1	15	1	707	1	2	0	5	0	1	0	0.3	1			177	1	17	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBA031S1	62620	1			1	1	480	1	1.5	1			25	1	5	1	4	1	67266	1
NURE Seds[e]	ONBA035S1	63047	1					425	1	1	1			30	1	5	1	8	1	31193	1
NURE Seds[e]	ONBA037S1																				
NURE Seds[e]	ONBA039S1	60267	1			1	1	427	1	1.5	1			25	1	5	0	9	1	48147	1
NURE Seds[e]	ONBB001S1	53007	1					430	1	1.5	1			40	1	5	0	7	1	26900	1
NURE Seds[e]	ONBB002S1	60773	1			1	1	437	1	0.5	1			30	1	5	0	9	1	39267	1
NURE Seds[e]	ONBB004S1	51267	1													7	1	20	1	34413	1
NURE Seds[e]	ONBB005S1	42787	1																	25833	1
NURE Seds[e]	ONBB006S1	42653	1					347	1	1	1			20	1	7	1	22	1	22593	1
NURE Seds[e]	ONBB008S1	21453	1					947	1	0.5	1			5	1	5	0	11	1	13267	1
NURE Seds[e]	ONBB010S1	56540	1			1	1	227	1	2.5	1			15	1	7	1	7	1	19480	1
NURE Seds[e]	ONBB012S1	43340	1			1	1	310	1	1	1			55	1	7	1	31	1	23193	1
NURE Seds[e]	ONBB014S1	59927	1			12	1	332	1	0.5	1			25	1	5	1	10	1	23900	1
NURE Seds[e]	ONBB015S1	40500	1			1	1	357	1	1	1			60	1	7	1	31	1	26600	1
NURE Seds[e]	ONBB016S1	47567	1			1	1	442	1	1.5	1			25	1	5	0	16	1	32307	1
NURE Seds[e]	ONBB017S1	54100	1			5	1	285	1	1	1			20	1	5	1	22	1	32907	1
NURE Seds[e]	ONBB021S1	55540	1			2	1	437	1	1	1			55	1	5	1	6	1	35507	1
NURE Seds[e]	ONBB022S1																				
NURE Seds[e]	ONBB023S1	49500	1			7	1	342	1	1	1			70	1	7	1	20	1	58380	1
NURE Seds[e]	ONBB025S1	24807	1					347	1	1	1			10	1	7	1	42	1	12793	1
NURE Seds[e]	ONBB027S1	36667	1			4	1	135	1	1	1			25	1	10	1	44	1	22540	1
NURE Seds[e]	ONBB028S1	48027	1					272	1	1.5	1			30	1	7	1	22	1	27967	1
NURE Seds[e]	ONBB029S1	49427	1					262	1	1.5	1			30	1	5	1	7	1	31460	1
NURE Seds[e]	ONBB032S1	54040	1					217	1	1.5	1			35	1	7	1	9	1	42060	1
NURE Seds[e]	ONBB033S1	57493	1			2	1	430	1	1	1			35	1	10	1	17	1	33267	1
NURE Seds[e]	ONBB034S1	49400	1					190	1	1	1			25	1	10	1	8	1	23167	1
NURE Seds[e]	ONBB037S1	54033	1					80	1	2	1			25	1	5	1	33	1	25093	1
NURE Seds[e]	ONBC001S1																				
NURE Seds[e]	ONBC002S1	48160	1			1	1	247	1	1	1			20	1	10	1	10	1	27027	1
NURE Seds[e]	ONBC003S1	54473	1			2	1	317	1	1.5	1			20	1	5	0	9	1	31893	1
NURE Seds[e]	ONBC004S1	54680	1			4	1	317	1	1.5	1			20	1	5	0	7	1	26767	1
NURE Seds[e]	ONBC008S1	48240	1					260	1	1.5	1			40	1	5	1	8	1	52453	1
NURE Seds[e]	ONBC009S1	52547	1					282	1	1	1			30	1	5	1	7	1	36573	1
NURE Seds[e]	ONBC010S1	47553	1					265	1	1.5	1			25	1	7	1	15	1	33507	1
NURE Seds[e]	ONBC011S1	54360	1			3	1	317	1	1	1			15	1	5	0	7	1	30160	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBA031S1	10	1	772	1	2	0	5	0	1	1	0.2	1			140	1	17	1
NURE Seds[e]	ONBA035S1	10	1	814	1	2	1	10	1	1	0	0.5	1			155	1	35	1
NURE Seds[e]	ONBA037S1											0.3	1						
NURE Seds[e]	ONBA039S1	10	1	1107	1	2	1	22	1	1	1	0.4	1			149	1	40	1
NURE Seds[e]	ONBB001S1	10	1	984	1	2	0	12	1	1	0	0.5	1			147	1	25	1
NURE Seds[e]	ONBB002S1	10	1	1190	1	2	1	12	1	1	0	0.6	1			142	1	27	1
NURE Seds[e]	ONBB004S1			980	1			27	1			0.8	1			128	1	77	1
NURE Seds[e]	ONBB005S1			475	1											61	1		
NURE Seds[e]	ONBB006S1	25	1	371	1	2	1	22	1	1	0	1.1	1			48	1	47	1
NURE Seds[e]	ONBB008S1	20	1	323	1	2	0	92	1	1	0	1.6	1			34	1	30	1
NURE Seds[e]	ONBB010S1	10	1	535	1	2	1	7	1	1	0	0.2	1			52	1	22	1
NURE Seds[e]	ONBB012S1	10	1	782	1	3	1	7	1	1	0	0.8	1			58	1	32	1
NURE Seds[e]	ONBB014S1	10	1	555	1	2	0	17	1	1	0	0.3	1			76	1	50	1
NURE Seds[e]	ONBB015S1	15	1	813	1	2	0	17	1	1	0	0.6	1			86	1	30	1
NURE Seds[e]	ONBB016S1	20	1	543	1	2	1	22	1	1	0	1	1			69	1	52	1
NURE Seds[e]	ONBB017S1	15	1	744	1	2	1	25	1	1	0	0.9	1			97	1	97	1
NURE Seds[e]	ONBB021S1	10	0	663	1	2	0	5	1	1	0	0.7	1			114	1	30	1
NURE Seds[e]	ONBB022S1											1	1						
NURE Seds[e]	ONBB023S1	15	1	734	1	2	1	12	1	1	0	0.5	1			167	1	45	1
NURE Seds[e]	ONBB025S1	65	1	485	1	2	1	15	1	1	1	2.1	1			28	1	42	1
NURE Seds[e]	ONBB027S1	25	1	750	1	2	0	40	1	1	1	1.9	1			75	1	95	1
NURE Seds[e]	ONBB028S1	10	0	1252	1	2	0	22	1	1	0	0.8	1			104	1	77	1
NURE Seds[e]	ONBB029S1	10	0	617	1	2	0	7	1	1	0	0.4	1			101	1	22	1
NURE Seds[e]	ONBB032S1	15	1	601	1	2	0	10	1	1	0	0.6	1			116	1	32	1
NURE Seds[e]	ONBB033S1	10	1	705	1	2	0	12	1	1	0	0.6	1			93	1	65	1
NURE Seds[e]	ONBB034S1	15	1	395	1	2	0	12	1	1	0	0.7	1			64	1	30	1
NURE Seds[e]	ONBB037S1	10	0	579	1	2	0	17	1	1	0	0.6	1			85	1	40	1
NURE Seds[e]	ONBC001S1											0.5	1						
NURE Seds[e]	ONBC002S1	10	1	587	1	2	0	15	1	2	1	0.7	1			52	1	22	1
NURE Seds[e]	ONBC003S1	15	1	687	1	2	1	15	1	1	0	0.2	1			84	1	27	1
NURE Seds[e]	ONBC004S1	15	1	619	1	2	0	10	1	1	0	0.5	1			73	1	25	1
NURE Seds[e]	ONBC008S1	10	1	848	1	2	0	10	1	1	0	0.3	1			146	1	15	1
NURE Seds[e]	ONBC009S1	10	1	744	1	2	0	7	1	1	0	0.2	1			142	1	20	1
NURE Seds[e]	ONBC010S1	10	0	981	1	2	0	7	1	1	0	0.4	1			118	1	22	1
NURE Seds[e]	ONBC011S1	10	0	742	1	2	0	5	1	1	0	0.3	1			96	1	17	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBC012S1	57793	1					295	1	1	1			15	1	5	1	9	1	39927	1
NURE Seds[e]	ONBC013S1	45227	1					80	1	1.5	1			35	1	5	0	5	1	81866	1
NURE Seds[e]	ONBC014S1																				
NURE Seds[e]	ONBC015S1	54800	1			1	1	307	1	2.5	1			15	1	5	0	7	1	17367	1
NURE Seds[e]	ONBC016S1	51427	1			3	1	325	1	1	1			60	1	7	1	17	1	43967	1
NURE Seds[e]	ONBC017S1	51313	1			5	1	320	1	2.5	1			25	1	5	1	11	1	31980	1
NURE Seds[e]	ONBC018S1	54627	1			4	1							45	1	10	1	14	1	32707	1
NURE Seds[e]	ONBC019S1	52580	1					117	1	2	1			15	1	7	1	6	1	19613	1
NURE Seds[e]	ONBC022S1	49040	1			2	1	342	1	1.5	1			35	1	5	1	9	1	25500	1
NURE Seds[e]	ONBC023S1	53833	1			4	1	442	1	1.5	1			40	1	5	1	13	1	28073	1
NURE Seds[e]	ONBC024S1	55727	1			2	1	57	1	1.5	1			35	1	5	0	12	1	25907	1
NURE Seds[e]	ONBC025S1	57400	1			2	1	342	1	1.5	1			20	1	5	1	10	1	22253	1
NURE Seds[e]	ONBC026S1	58567	1			1	1	300	1	1.5	1			25	1	5	1	9	1	31673	1
NURE Seds[e]	ONBC027S1	55960	1			1	1	307	1	2	1			30	1	5	1	9	1	29233	1
NURE Seds[e]	ONBC028S1	54160	1			2	1	302	1	2	1			35	1	5	1	7	1	21420	1
NURE Seds[e]	ONBC029S1	56120	1			1	1	372	1	2	1			30	1	5	1	8	1	23433	1
NURE Seds[e]	ONBC030S1	57587	1					245	1	2	1			25	1	7	1	16	1	26360	1
NURE Seds[e]	ONBC031S1	56940	1			1	1	327	1	2	1			35	1	7	1	16	1	28467	1
NURE Seds[e]	ONBC034S1	52233	1			2	1	397	1	2	1			55	1	7	1	16	1	42860	1
NURE Seds[e]	ONBC035S1	67666	1					357	1	2	1			30	1	7	1	10	1	19093	1
NURE Seds[e]	ONBC036S1	57880	1			3	1	260	1	1.5	1			25	1	5	1	11	1	25940	1
NURE Seds[e]	ONBD001S1	59533	1					337	1	2	1			25	1	5	0	4	1	35240	1
NURE Seds[e]	ONBD002S1	55507	1			1	1	432	1	1.5	1			30	1	5	1	18	1	20220	1
NURE Seds[e]	ONBD003S1	57613	1			1	1	410	1	1.5	1			50	1	5	1	15	1	21067	1
NURE Seds[e]	ONBD004S1	55040	1			1	1	260	1	1.5	1			30	1	5	1	10	1	26887	1
NURE Seds[e]	ONBD005S1	62107	1					285	1	2	1			20	1	5	1	9	1	26267	1
NURE Seds[e]	ONBD009S1	63640	1			1	1	425	1	1.5	1			15	1	5	0	2	1	23620	1
NURE Seds[e]	ONBD010S1	62180	1					342	1	2	1			15	1	5	1	9	1	28513	1
NURE Seds[e]	ONBD011S1																				
NURE Seds[e]	ONBD013S1	57160	1			4	1	307	1	1	1			25	1	5	1	7	1	29280	1
NURE Seds[e]	ONBD014S1	50080	1			1	1	422	1	2	1			20	1	7	1	20	1	21940	1
NURE Seds[e]	ONBD016S1	48433	1			2	1	347	1	1.5	1			30	1	5	0	3	1	18133	1
NURE Seds[e]	ONBD017S1	63720	1					297	1	2	1			20	1	5	0	4	1	13540	1
NURE Seds[e]	ONBD019S1	51407	1			5	1	310	1	2	1			30	1	5	0	8	1	27387	1
NURE Seds[e]	ONBD020S1	58100	1					112	1	1.5	1			15	1	5	1	9	1	24580	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBC012S1	10	1	723	1	2	0	5	1	1	0	0.3	1			96	1	25	1
NURE Seds[e]	ONBC013S1	15	1	1093	1	2	0	5	0	1	0	0.3	1			235	1	12	1
NURE Seds[e]	ONBC014S1											0.3	1						
NURE Seds[e]	ONBC015S1	10	1	400	1	2	0	10	1	1	0	0.3	1			45	1	17	1
NURE Seds[e]	ONBC016S1	10	1	917	1	2	1	15	1	1	1	0.4	1			114	1	32	1
NURE Seds[e]	ONBC017S1	10	0	657	1	2	0	20	1	1	0	0.4	1			84	1	32	1
NURE Seds[e]	ONBC018S1			721	1	2	0	14	1	1	0	0.6	1			90	1	34	1
NURE Seds[e]	ONBC019S1	25	1	428	1	2	0	12	1	1	0	0.4	1			44	1	25	1
NURE Seds[e]	ONBC022S1	10	1	505	1	2	1	7	1	1	0	0.4	1			62	1	27	1
NURE Seds[e]	ONBC023S1	10	1	543	1	3	1	10	1	1	0	0.4	1			51	1	35	1
NURE Seds[e]	ONBC024S1	10	1	543	1	2	0	5	1	2	1	0.4	1			74	1	30	1
NURE Seds[e]	ONBC025S1	10	0	426	1	2	0	5	1	4	1	0.1	1			54	1	32	1
NURE Seds[e]	ONBC026S1	10	1	612	1	2	0	5	0	1	0	0.3	1			76	1	25	1
NURE Seds[e]	ONBC027S1	10	1	572	1	2	1	7	1	1	1	0.2	1			55	1	30	1
NURE Seds[e]	ONBC028S1	10	1	468	1	2	0	5	1	1	0	0.2	1			51	1	22	1
NURE Seds[e]	ONBC029S1	15	1	566	1	2	0	5	1	1	0	0.4	1			58	1	25	1
NURE Seds[e]	ONBC030S1	10	1	737	1	2	0	5	0	1	0	0.2	1			62	1	52	1
NURE Seds[e]	ONBC031S1	15	1	764	1	2	0	7	1	1	0	0.2	1			69	1	47	1
NURE Seds[e]	ONBC034S1	15	1	639	1	2	0	15	1	1	0	0.3	1			111	1	35	1
NURE Seds[e]	ONBC035S1	10	1	492	1	2	0	17	1	1	0	0.4	1			49	1	55	1
NURE Seds[e]	ONBC036S1	15	1	526	1	2	0	5	1	1	0	0.1	1			51	1	40	1
NURE Seds[e]	ONBD001S1	10	1	526	1	2	1	5	0	1	0	0.4	1			80	1	10	1
NURE Seds[e]	ONBD002S1	10	1	588	1	2	1	10	1	1	0	0.4	1			77	1	67	1
NURE Seds[e]	ONBD003S1	10	1	437	1	2	0	12	1	1	1	0.3	1			56	1	42	1
NURE Seds[e]	ONBD004S1	10	1	529	1	3	1	10	1	4	1	0.3	1			82	1	35	1
NURE Seds[e]	ONBD005S1	10	1	538	1	2	0	7	1	1	0	0.3	1			51	1	40	1
NURE Seds[e]	ONBD009S1	15	1	720	1	2	0	5	0	1	0	0.1	1			75	1	10	1
NURE Seds[e]	ONBD010S1	10	1	465	1	2	0	5	1	1	1	0.5	1			56	1	32	1
NURE Seds[e]	ONBD011S1											0.4	1						
NURE Seds[e]	ONBD013S1	10	0	557	1	2	0	5	1	1	0	0.3	1			36	1	22	1
NURE Seds[e]	ONBD014S1	10	1	419	1	2	1	7	1	1	0	0.1	1			51	1	35	1
NURE Seds[e]	ONBD016S1	10	0	542	1	2	0	5	0	1	0	0.1	0			56	1	5	1
NURE Seds[e]	ONBD017S1	10	1	348	1	2	1	5	0	1	0	0.1	0			40	1	17	1
NURE Seds[e]	ONBD019S1	10	1	644	1	2	0	5	0	1	0	0.2	1			79	1	17	1
NURE Seds[e]	ONBD020S1	20	1	798	1	2	0	5	0	1	0	0.1	1			55	1	35	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBD021S1	58447	1			11	1	297	1	1.5	1			15	1	5	0	5	1	18360	1
NURE Seds[e]	ONBD022S1	66666	1			7	1	467	1	2	1			15	1	5	0	3	1	19920	1
NURE Seds[e]	ONBD023S1	63740	1					247	1	2	1			20	1	5	1	7	1	19873	1
NURE Seds[e]	ONBD025S1																				
NURE Seds[e]	ONBD026S1	55127	1			1	1							33	1					7627	1
NURE Seds[e]	ONBD027S1	57727	1			2	1	167	1	2	1			15	1	5	0	7	1	16873	1
NURE Seds[e]	ONBD028S1	58900	1			2	1	232	1	1.5	1			10	1	5	0	4	1	16667	1
NURE Seds[e]	ONBD030S1	60967	1			1	1	197	1	3	1			10	1	5	0	2	1	15093	1
NURE Seds[e]	ONBD032S1	56980	1			1	1	192	1	2	1			20	1	5	1	10	1	29227	1
NURE Seds[e]	ONBD033S1																				
NURE Seds[e]	ONBD034S1	56967	1			2	1	235	1	2	1			20	1	7	1	11	1	23247	1
NURE Seds[e]	ONBD035S1	63473	1			4	1	125	1	2.5	1			20	1	7	1	10	1	21993	1
NURE Seds[e]	ONBD036S1	60827	1			1	1	167	1	2.5	1			10	1	5	1	7	1	20760	1
NURE Seds[e]	ONBD037S1	52787	1			11	1	100	1	1.5	1			5	1	7	1	12	1	16233	1
NURE Seds[e]	ONBE001S1	46300	1			3	1	117	1	1.5	1			15	1	10	1	46	1	18067	1
NURE Seds[e]	ONBE002S1	53153	1			2	1	57	1	1.5	1			40	1	10	1	20	1	27220	1
NURE Seds[e]	ONBE003S1	50147	1			2	1	122	1	2.5	1			30	1	10	1	21	1	24527	1
NURE Seds[e]	ONBE004S1	64233	1			4	1	135	1	2.5	1			25	1	7	1	19	1	27927	1
NURE Seds[e]	ONBE005S1	60227	1			2	1	272	1	1.5	1			35	1	5	1	8	1	19607	1
NURE Seds[e]	ONBE006S1	60600	1			2	1	205	1	2	1			40	1	5	1	4	1	19933	1
NURE Seds[e]	ONBE008S1	57747	1			1	1	142	1	2.5	1			20	1	5	1	12	1	18060	1
NURE Seds[e]	ONBE010S1	54560	1			3	1	60	1	3	1			15	1	5	1	21	1	17573	1
NURE Seds[e]	ONBE012S1	58027	1			11	1	117	1	2.5	1			55	1	10	1	11	1	25660	1
NURE Seds[e]	ONBE013S1	56200	1			7	1	112	1	2	1			50	1	10	1	10	1	27393	1
NURE Seds[e]	ONBE017S1	61407	1			2	1	95	1	2.5	1			50	1	10	1	21	1	25173	1
NURE Seds[e]	ONBE018S1	47740	1			5	1	160	1	2.5	1			30	1	10	1	13	1	22933	1
NURE Seds[e]	ONBE019S1	64547	1			1	1	110	1	2.5	1			50	1	10	1	20	1	31047	1
NURE Seds[e]	ONBE021S1	56120	1			4	1	60	1	3	1			50	1	7	1	23	1	22373	1
NURE Seds[e]	ONBE022S1	61487	1			7	1	125	1	3	1			25	1	7	1	7	1	21187	1
NURE Seds[e]	ONBE023S1	62227	1			11	1	197	1	2.5	1			45	1	7	1	14	1	30653	1
NURE Seds[e]	ONBE024S1	68133	1			11	1	147	1	5.5	1			20	1	7	1	25	1	20153	1
NURE Seds[e]	ONBE025S1	61980	1			2	1	52	1	3	1			15	1	5	1	6	1	14667	1
NURE Seds[e]	ONBE026S1	68666	1			2	1							25	1	7	1	13	1	20860	1
NURE Seds[e]	ONBE027S1	54140	1			1	1	167	1	2	1			25	1	5	0	11	1	18067	1
NURE Seds[e]	ONBE028S1																				

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBD021S1	10	1	416	1	3	1	5	0	1	0	0.1	1			43	1	15	1
NURE Seds[e]	ONBD022S1	10	0	592	1	2	1	5	0	1	0	0.1	1			76	1	12	1
NURE Seds[e]	ONBD023S1	10	1	490	1	2	1	5	0	2	1	0.2	1			60	1	20	1
NURE Seds[e]	ONBD025S1											0.5	1						
NURE Seds[e]	ONBD026S1			899	1	6	1			8	1					49	1		
NURE Seds[e]	ONBD027S1	15	1	454	1	2	1	7	1	3	1	0.5	1			39	1	22	1
NURE Seds[e]	ONBD028S1	15	1	419	1	2	1	5	0	2	1	0.5	1			31	1	20	1
NURE Seds[e]	ONBD030S1	20	1	356	1	2	0	5	0	1	1	0.2	1			32	1	10	1
NURE Seds[e]	ONBD032S1	15	1	511	1	2	1	10	1	2	1	0.4	1			60	1	30	1
NURE Seds[e]	ONBD033S1											0.3	1						
NURE Seds[e]	ONBD034S1	20	1	573	1	2	0	7	1	2	1	0.6	1			81	1	25	1
NURE Seds[e]	ONBD035S1	15	1	865	1	2	0	7	1	1	0	0.5	1			60	1	50	1
NURE Seds[e]	ONBD036S1	15	1	448	1	2	0	5	1	2	1	0.2	1			37	1	30	1
NURE Seds[e]	ONBD037S1	15	1	515	1	3	1	7	1	2	1	0.8	1			44	1	27	1
NURE Seds[e]	ONBE001S1	15	1	306	1	2	0	15	1	2	1	0.5	1			48	1	55	1
NURE Seds[e]	ONBE002S1	20	1	562	1	2	0	15	1	1	0	0.6	1			82	1	52	1
NURE Seds[e]	ONBE003S1	20	1	479	1	2	0	7	1	2	1	0.6	1			50	1	42	1
NURE Seds[e]	ONBE004S1	15	1	428	1	3	1	7	1	2	1	0.8	1			43	1	27	1
NURE Seds[e]	ONBE005S1	15	1	655	1	2	0	5	1	1	0	0.5	1			59	1	27	1
NURE Seds[e]	ONBE006S1	20	1	438	1	2	0	7	1	1	0	0.3	1			49	1	20	1
NURE Seds[e]	ONBE008S1	20	1	568	1	2	0	5	1	1	0	0.6	1			62	1	40	1
NURE Seds[e]	ONBE010S1	20	1	460	1	2	0	10	1	2	1	0.6	1			30	1	52	1
NURE Seds[e]	ONBE012S1	20	1	1501	1	2	0	12	1	1	0	0.6	1			114	1	35	1
NURE Seds[e]	ONBE013S1	20	1	889	1	2	0	12	1	2	1	0.6	1			92	1	32	1
NURE Seds[e]	ONBE017S1	20	1	418	1	2	0	12	1	1	0	0.7	1			73	1	35	1
NURE Seds[e]	ONBE018S1	20	1	667	1	2	0	15	1	1	0	0.5	1			93	1	62	1
NURE Seds[e]	ONBE019S1	25	1	869	1	3	1	12	1	1	0	0.6	1			77	1	65	1
NURE Seds[e]	ONBE021S1	15	1	590	1	2	1	7	1	1	1	0.6	1			54	1	32	1
NURE Seds[e]	ONBE022S1	20	1	870	1	2	0	5	0	3	1	0.5	1			52	1	80	1
NURE Seds[e]	ONBE023S1	20	1	739	1	2	1	10	1	1	0	0.6	1			102	1	37	1
NURE Seds[e]	ONBE024S1	20	1	929	1	3	1	7	1	1	0	0.8	1			41	1	107	1
NURE Seds[e]	ONBE025S1	20	1	445	1	2	0	5	0	2	1	0.5	1			23	1	17	1
NURE Seds[e]	ONBE026S1			1153	1	2	0	5	1	1	1	0.9	1			47	1	47	1
NURE Seds[e]	ONBE027S1	10	1	354	1	2	0	12	1	1	0	0.4	1			47	1	32	1
NURE Seds[e]	ONBE028S1											0.4	1						

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBE029S1	57940	1			3	1	147	1	2.5	1			40	1	5	1	12	1	20640	1
NURE Seds[e]	ONBE031S1	52773	1			4	1	172	1	2.5	1			30	1	5	1	12	1	19340	1
NURE Seds[e]	ONBE032S1	45460	1			3	1	72	1	2	1			10	1	5	1	19	1	15233	1
NURE Seds[e]	ONBF001S1	51500	1			8	1	250	1	2	1			240	1	12	1	15	1	29387	1
NURE Seds[e]	ONBF002S1	58000	1			6	1	260	1	2.5	1			70	1	7	1	16	1	23153	1
NURE Seds[e]	ONBF003S1	50587	1			7	1	162	1	2	1			70	1	7	1	25	1	27100	1
NURE Seds[e]	ONBF004S1	63693	1			5	1	272	1	1.5	1			55	1	5	1	13	1	28807	1
NURE Seds[e]	ONBF005S1	61300	1			2	1	202	1	1.5	1			60	1	7	1	14	1	44093	1
NURE Seds[e]	ONBF006S1	53467	1			5	1	172	1	2.5	1			45	1	5	1	10	1	28553	1
NURE Seds[e]	ONBF009S1	56980	1			3	1	242	1	2	1			45	1	5	1	17	1	18480	1
NURE Seds[e]	ONBF011S1	47587	1			2	1	190	1	1.5	1			105	1	10	1	20	1	33540	1
NURE Seds[e]	ONBF014S1	58460	1			2	1	185	1	2.5	1			80	1	7	1	25	1	26800	1
NURE Seds[e]	ONBF015S1	56433	1			3	1	205	1	3	1			80	1	5	1	19	1	26267	1
NURE Seds[e]	ONBF016S1	53580	1			2	1	187	1	2.5	1			65	1	5	1	32	1	23833	1
NURE Seds[e]	ONBF017S1	45653	1			6	1	85	1	2.5	1			65	1	10	1	31	1	23267	1
NURE Seds[e]	ONBF018S1	54987	1			4	1	135	1	2.5	1			105	1	5	1	11	1	33033	1
NURE Seds[e]	ONBF019S1	53327	1			2	1	347	1	2.5	1			50	1	5	1	9	1	38473	1
NURE Seds[e]	ONBF021S1	53513	1			5	1	222	1	2.5	1			85	1	5	1	22	1	22227	1
NURE Seds[e]	ONBF022S1	50647	1			5	1	87	1	2.5	1			135	1	7	1	19	1	21887	1
NURE Seds[e]	ONBF023S1	61940	1			2	1	267	1	2.5	1			60	1	5	1	11	1	32693	1
NURE Seds[e]	ONBF024S1	57540	1			1	1	227	1	2.5	1			165	1	5	1	11	1	32940	1
NURE Seds[e]	ONBF025S1	49420	1			5	1	177	1	2	1			50	1	5	1	35	1	18800	1
NURE Seds[e]	ONBF026S1	59293	1			4	1	275	1	2	1			80	1	7	1	12	1	27500	1
NURE Seds[e]	ONBF028S1	60447	1			4	1	197	1	3.5	1			195	1	5	1	12	1	42707	1
NURE Seds[e]	ONBF030S1	55120	1			4	1	177	1	2	1			50	1	7	1	24	1	22367	1
NURE Seds[e]	ONBF031S1	48893	1			2	1	80	1	3	1			25	1	7	1	14	1	18753	1
NURE Seds[e]	ONBF032S1	54127	1			2	1	62	1	2	1			80	1	5	1	35	1	23973	1
NURE Seds[e]	ONBG007S1	50100	1					70	1	2.5	1			15	1	5	1	10	1	24953	1
NURE Seds[e]	ONBG008S1	58253	1			1	1	142	1	1.5	1			15	1	5	1	8	1	32320	1
NURE Seds[e]	ONBG009S1	56700	1					217	1	2	1			20	1	5	1	4	1	19940	1
NURE Seds[e]	ONBG010S1	54733	1					165	1	2.5	1			15	1	5	1	6	1	25200	1
NURE Seds[e]	ONBG011S1	56400	1					140	1	2.5	1			20	1	5	0	4	1	29113	1
NURE Seds[e]	ONBG012S1	59500	1					82	1	3	1			25	1	5	1	20	1	25353	1
NURE Seds[e]	ONBG013S1	62673	1			1	1	310	1	2.5	1			15	1	5	0	3	1	23680	1
NURE Seds[e]	ONBG014S1	62626	1					290	1	3	1			10	1	5	0	2	1	7953	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBE029S1	10	0	462	1	2	0	10	1	1	0	0.4	1			54	1	37	1
NURE Seds[e]	ONBE031S1	10	1	448	1	3	1	12	1	1	0	0.5	1			46	1	35	1
NURE Seds[e]	ONBE032S1	10	1	271	1	2	1	7	1	1	0	0.4	1			31	1	42	1
NURE Seds[e]	ONBF001S1	30	1	498	1	2	1	62	1	1	0	0.7	1			115	1	57	1
NURE Seds[e]	ONBF002S1	10	1	721	1	2	1	15	1	1	0	0.4	1			72	1	42	1
NURE Seds[e]	ONBF003S1	15	1	632	1	3	1	22	1	1	0	0.8	1			62	1	55	1
NURE Seds[e]	ONBF004S1	10	1	455	1	2	0	10	1	1	0	0.3	1			53	1	37	1
NURE Seds[e]	ONBF005S1	10	0	651	1	4	1	17	1	1	0	0.5	1			119	1	62	1
NURE Seds[e]	ONBF006S1	10	0	517	1	2	0	12	1	1	0	0.4	1			80	1	37	1
NURE Seds[e]	ONBF009S1	10	1	540	1	2	1	12	1	1	0	0.4	1			74	1	42	1
NURE Seds[e]	ONBF011S1	10	1	644	1	4	1	22	1	1	0	0.7	1			71	1	32	1
NURE Seds[e]	ONBF014S1	25	1	635	1	2	0	12	1	1	0	0.4	1			102	1	72	1
NURE Seds[e]	ONBF015S1	10	0	576	1	2	0	7	1	1	0	0.3	1			104	1	40	1
NURE Seds[e]	ONBF016S1	10	0	514	1	2	0	22	1	1	0	0.5	1			76	1	20	1
NURE Seds[e]	ONBF017S1	15	1	343	1	3	1	12	1	1	0	0.8	1			59	1	50	1
NURE Seds[e]	ONBF018S1	25	1	467	1	2	1	10	1	1	0	0.4	1			90	1	27	1
NURE Seds[e]	ONBF019S1	10	1	777	1	2	0	5	0	1	0	0.4	1			122	1	22	1
NURE Seds[e]	ONBF021S1	20	1	577	1	2	1	20	1	1	0	0.5	1			78	1	30	1
NURE Seds[e]	ONBF022S1	10	1	507	1	2	0	65	1	1	0	0.5	1			51	1	22	1
NURE Seds[e]	ONBF023S1	10	0	703	1	2	0	5	1	1	0	0.3	1			110	1	25	1
NURE Seds[e]	ONBF024S1	10	1	723	1	2	0	17	1	1	0	0.3	1			104	1	27	1
NURE Seds[e]	ONBF025S1	10	1	338	1	2	0	15	1	1	0	0.4	1			61	1	37	1
NURE Seds[e]	ONBF026S1	20	1	558	1	2	0	15	1	1	0	0.4	1			83	1	37	1
NURE Seds[e]	ONBF028S1	10	1	907	1	2	0	20	1	1	0	0.4	1			137	1	25	1
NURE Seds[e]	ONBF030S1	10	0	1311	1	3	1	15	1	1	0	0.4	1			69	1	42	1
NURE Seds[e]	ONBF031S1	30	1	406	1	2	0	12	1	1	0	0.5	1			71	1	92	1
NURE Seds[e]	ONBF032S1	20	1	434	1	3	1	15	1	1	0	0.5	1			76	1	30	1
NURE Seds[e]	ONBG007S1	20	1	768	1	6	1	5	1	1	1	0.4	1			44	1	22	1
NURE Seds[e]	ONBG008S1	15	1	840	1	2	0	7	1	3	1	0.6	1			86	1	27	1
NURE Seds[e]	ONBG009S1	15	1	607	1	3	1	5	0	4	1	0.1	1			55	1	17	1
NURE Seds[e]	ONBG010S1	20	1	683	1	2	0	5	1	2	1	0.4	1			40	1	45	1
NURE Seds[e]	ONBG011S1	15	1	581	1	4	1	5	1	1	0	0.4	1			59	1	12	1
NURE Seds[e]	ONBG012S1	25	1	697	1	2	0	15	1	1	0	0.5	1			31	1	52	1
NURE Seds[e]	ONBG013S1	15	1	484	1	2	0	7	1	1	0	0.3	1			38	1	17	1
NURE Seds[e]	ONBG014S1	10	1	315	1	2	0	5	1	4	1	0.4	1			19	1	15	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBG015S1	57167	1					172	1	2	1			15	1	5	0	4	1	15053	1
NURE Seds[e]	ONBG016S1	62100	1					275	1	2.5	1			25	1	5	0	6	1	29253	1
NURE Seds[e]	ONBG017S1	62593	1			1	1	385	1	2	1			30	1	5	0	5	1	17367	1
NURE Seds[e]	ONBG020S1	52167	1					95	1	1.5	1			30	1	5	1	6	1	43500	1
NURE Seds[e]	ONBG021S1	59033	1					125	1	2.5	1			35	1	7	1	13	1	29907	1
NURE Seds[e]	ONBG022S1	58967	1					150	1	2	1			15	1	5	0	9	1	28067	1
NURE Seds[e]	ONBG024S1	59567	1					137	1	1.5	1			15	1	5	0	6	1	25640	1
NURE Seds[e]	ONBG025S1																				
NURE Seds[e]	ONBG026S1	54393	1					170	1	2	1			25	1	5	0	7	1	24307	1
NURE Seds[e]	ONBH002S1	48480	1			8	1	152	1	1.5	1			15	1	10	1	22	1	28220	1
NURE Seds[e]	ONBH005S1	47107	1			9	1	235	1	1.5	1			70	1	12	1	26	1	26393	1
NURE Seds[e]	ONBH006S1	44700	1			10	1	157	1	2	1			60	1	15	1	41	1	30873	1
NURE Seds[e]	ONBH007S1	56433	1			1	1	250	1	2.5	1			70	1	7	1	23	1	49393	1
NURE Seds[e]	ONBH009S1	52820	1			6	1	200	1	2	1			25	1	7	1	16	1	24940	1
NURE Seds[e]	ONBH010S1	44473	1			3	1	90	1	1.5	1			30	1	5	0	10	1	18233	1
NURE Seds[e]	ONBH011S1	36340	1			2	1	77	1	2	1			40	1	5	1	6	1	43167	1
NURE Seds[e]	ONBH012S1	43953	1			6	1	97	1	2	1			25	1	5	1	8	1	30067	1
NURE Seds[e]	ONBH013S1	55687	1			5	1	150	1	2.5	1			25	1	5	1	8	1	26147	1
NURE Seds[e]	ONBH014S1	52707	1			12	1	112	1	2	1			40	1	12	1	23	1	28447	1
NURE Seds[e]	ONBH015S1	40240	1			1	1	112	1	1	1			40	1	7	1	11	1	35573	1
NURE Seds[e]	ONBH016S1	42760	1			3	1	197	1	1.5	1			30	1	10	1	14	1	18053	1
NURE Seds[e]	ONBH017S1	41727	1			1	1	72	1	0.5	1			45	1	10	1	9	1	34400	1
NURE Seds[e]	ONBH018S1	21427	1			1	1	200	1	1	1			15	1	15	1	12	1	11340	1
NURE Seds[e]	ONBH019S1	41773	1			2	1	22	1	1.5	1			80	1	10	1	22	1	39300	1
NURE Seds[e]	ONBH021S1	51273	1			3	1	150	1	1	1			80	1	5	1	16	1	26187	1
NURE Seds[e]	ONBH022S1	34813	1			2	1	55	1	0.5	1			50	1	7	1	9	1	37493	1
NURE Seds[e]	ONBH023S1	45907	1			10	1	137	1	1.5	1			40	1	12	1	28	1	28493	1
NURE Seds[e]	ONBH029S1	55027	1			1	1	157	1	1.5	1			30	1	7	1	20	1	27027	1
NURE Seds[e]	ONBH030S1	53213	1			6	1	240	1	1.5	1			35	1	10	1	17	1	28520	1
NURE Seds[e]	ONBH031S1	58487	1					112	1	1	1			15	1	5	0	4	1	17653	1
NURE Seds[e]	ONBH032S1	52987	1			2	1	62	1	2	1			20	1	5	1	8	1	27593	1
NURE Seds[e]	ONBH033S1	54807	1			3	1	97	1	1	1			20	1	5	1	4	1	25887	1
NURE Seds[e]	ONBH036S1	32487	1			1	1	55	1	0.5	1			15	1	5	0	8	1	21460	1
NURE Seds[e]	ONCA002S1	63513	1			4	1	192	1	2	1			15	1	5	0	5	1	38027	1
NURE Seds[e]	ONCA003S1	59833	1			7	1	240	1	1.5	1			10	1	5	0	6	1	54660	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBG015S1	15	1	330	1	2	0	5	1	2	1	0.4	1			34	1	20	1
NURE Seds[e]	ONBG016S1	15	1	676	1	2	0	5	0	2	1	0.4	1			80	1	22	1
NURE Seds[e]	ONBG017S1	15	1	541	1	2	0	7	1	1	0	0.3	1			71	1	27	1
NURE Seds[e]	ONBG020S1	15	1	837	1	2	0	10	1	1	1	0.3	1			98	1	27	1
NURE Seds[e]	ONBG021S1	20	1	832	1	5	1	10	1	1	1	0.6	1			118	1	60	1
NURE Seds[e]	ONBG022S1	10	1	634	1	2	0	7	1	1	0	0.2	1			87	1	22	1
NURE Seds[e]	ONBG024S1	30	1	582	1	4	1	5	1	3	1	0.2	1			65	1	17	1
NURE Seds[e]	ONBG025S1											0.5	1						
NURE Seds[e]	ONBG026S1	15	1	565	1	2	0	5	0	1	1	0.3	1			67	1	15	1
NURE Seds[e]	ONBH002S1	25	1	591	1	2	0	10	1	1	0	0.6	1			113	1	67	1
NURE Seds[e]	ONBH005S1	10	1	594	1	2	0	25	1	1	0	0.9	1			84	1	52	1
NURE Seds[e]	ONBH006S1	30	1	754	1	3	1	32	1	1	0	1.1	1			72	1	72	1
NURE Seds[e]	ONBH007S1	15	1	815	1	2	0	15	1	3	1	0.4	1			108	1	47	1
NURE Seds[e]	ONBH009S1	35	1	855	1	2	0	5	1	1	0	0.4	1			49	1	80	1
NURE Seds[e]	ONBH010S1	20	1	478	1	2	0	7	1	3	1	0.3	1			47	1	35	1
NURE Seds[e]	ONBH011S1	30	1	649	1	2	0	10	1	1	0	0.3	1			93	1	20	1
NURE Seds[e]	ONBH012S1	25	1	484	1	2	0	10	1	1	0	0.4	1			44	1	47	1
NURE Seds[e]	ONBH013S1	25	1	593	1	2	0	7	1	1	0	0.5	1			34	1	47	1
NURE Seds[e]	ONBH014S1	230	1	1055	1	2	0	22	1	1	0	0.7	1			103	1	212	1
NURE Seds[e]	ONBH015S1	20	1	378	1	2	0	15	1	1	0	6.2	1			164	1	80	1
NURE Seds[e]	ONBH016S1	35	1	503	1	2	0	12	1	1	0	19.3	1			75	1	80	1
NURE Seds[e]	ONBH017S1	25	1	738	1	2	0	15	1	1	0	10.3	1			118	1	40	1
NURE Seds[e]	ONBH018S1	20	1	346	1	2	0	12	1	1	0	2.4	1			43	1	40	1
NURE Seds[e]	ONBH019S1	25	1	694	1	2	0	17	1	1	0	0.8	1			120	1	55	1
NURE Seds[e]	ONBH021S1	25	1	482	1	2	0	15	1	1	0	0.6	1			95	1	65	1
NURE Seds[e]	ONBH022S1	15	1	468	1	2	0	7	1	1	0	0.4	1			60	1	32	1
NURE Seds[e]	ONBH023S1	30	1	517	1	8	1	22	1	1	0	0.9	1			76	1	92	1
NURE Seds[e]	ONBH029S1	15	1	762	1	2	0	15	1	1	0	0.7	1			67	1	45	1
NURE Seds[e]	ONBH030S1	45	1	642	1	2	0	15	1	1	0	0.5	1			77	1	122	1
NURE Seds[e]	ONBH031S1	10	1	347	1	2	0	5	0	1	0	0.2	1			31	1	20	1
NURE Seds[e]	ONBH032S1	15	1	704	1	2	0	5	0	1	0	0.4	1			67	1	35	1
NURE Seds[e]	ONBH033S1	20	1	499	1	2	0	17	1	1	0	0.6	1			57	1	12	1
NURE Seds[e]	ONBH036S1	15	1	697	1	2	0	5	0	1	0	0.5	1			71	1	25	1
NURE Seds[e]	ONCA002S1	15	1	833	1	2	0	5	0	1	0	0.5	1			101	1	25	1
NURE Seds[e]	ONCA003S1	15	1	1261	1	2	1	5	1	1	0	0.5	1			144	1	20	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCA004S1	66166	1			2	1	177	1	1.5	1			25	1	5	0	7	1	26360	1
NURE Seds[e]	ONCA013S1	62007	1			5	1	330	1	1.5	1			15	1	5	0	7	1	18193	1
NURE Seds[e]	ONCA015S1																				
NURE Seds[e]	ONCA016S1	62300	1			1	1	160	1	1	1			35	1	5	1	12	1	24360	1
NURE Seds[e]	ONCA017S1	55093	1			6	1	325	1	0.5	1			35	1	5	1	8	1	38560	1
NURE Seds[e]	ONCA026S1	63200	1			1	1	397	1	1.5	1			20	1	5	1	11	1	44093	1
NURE Seds[e]	ONCA033S1	67733	1			5	1	162	1	2	1			15	1	5	0	22	1	24253	1
NURE Seds[e]	ONCB003S1	55107	1			1	1	335	1	2	1			35	1	7	1	14	1	33953	1
NURE Seds[e]	ONCB005S1	53920	1			2	1	245	1	2	1			35	1	5	1	11	1	25153	1
NURE Seds[e]	ONCB006S1	54320	1			2	1	227	1	2	1			15	1	7	1	17	1	22680	1
NURE Seds[e]	ONCB007S1	57140	1			2	1	437	1	2	1			40	1	5	0	16	1	26307	1
NURE Seds[e]	ONCB010S1	54687	1			2	1	275	1	1.5	1			30	1	10	1	22	1	25533	1
NURE Seds[e]	ONCB011S1	59033	1			2	1	387	1	2.5	1			35	1	5	1	14	1	33487	1
NURE Seds[e]	ONCB012S1	49693	1					317	1	1.5	1			20	1	5	1	17	1	28560	1
NURE Seds[e]	ONCB013S1	54767	1			4	1	287	1	2	1			30	1	7	1	19	1	31487	1
NURE Seds[e]	ONCB014S1																				
NURE Seds[e]	ONCB015S1	55620	1			4	1	310	1	2	1			65	1	12	1	22	1	38273	1
NURE Seds[e]	ONCB016S1	59253	1			1	1	342	1	2	1			50	1	5	1	10	1	33227	1
NURE Seds[e]	ONCB017S1	58800	1			5	1	192	1	2	1			20	1	5	1	13	1	28060	1
NURE Seds[e]	ONCB018S1	57167	1			2	1	275	1	1.5	1			35	1	5	1	14	1	32827	1
NURE Seds[e]	ONCB019S1	51140	1			2	1	85	1	2	1			25	1	5	1	32	1	19813	1
NURE Seds[e]	ONCB020S1	55707	1			7	1	210	1	2.5	1			85	1	12	1	30	1	47407	1
NURE Seds[e]	ONCB022S1	65866	1			1	1	212	1	3	1			70	1	7	1	15	1	28920	1
NURE Seds[e]	ONCB023S1	58207	1			9	1	190	1	2.5	1			25	1	5	0	27	1	19000	1
NURE Seds[e]	ONCB025S1	64880	1			3	1	212	1	3	1			15	1	5	0	17	1	18940	1
NURE Seds[e]	ONCB028S1	58867	1			4	1	178	1	1.5	1			90	1	10	1	36	1	54280	1
NURE Seds[e]	ONCB031S1																				
NURE Seds[e]	ONCC001S1	60987	1					163	1	0.5	1			25	1	5	0	5	1	28140	1
NURE Seds[e]	ONCC002S1	49227	1					73	1	1	1			20	1	5	1	8	1	16153	1
NURE Seds[e]	ONCC004S1	56607	1					168	1	0.5	1			20	1	5	0	26	1	19760	1
NURE Seds[e]	ONCC007S1	54833	1			1	1	150	1	1	1			20	1	5	0	12	1	21980	1
NURE Seds[e]	ONCC013S1	60347	1			2	1	185	1	1	1			20	1	5	0	12	1	29440	1
NURE Seds[e]	ONCC014S1	55100	1			1	1	168	1	1.5	1			25	1	5	0	12	1	27400	1
NURE Seds[e]	ONCC015S1	59340	1					80	1	1	1			25	1	5	0	7	1	35640	1
NURE Seds[e]	ONCC016S1																				

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCA004S1	15	1	703	1	2	0	5	0	1	0	0.2	1			89	1	22	1
NURE Seds[e]	ONCA013S1	10	1	421	1	2	0	5	0	1	0	0.5	1			43	1	37	1
NURE Seds[e]	ONCA015S1											0.7	1						
NURE Seds[e]	ONCA016S1	15	1	733	1	2	0	5	1	1	0	0.7	1			55	1	37	1
NURE Seds[e]	ONCA017S1	15	1	739	1	2	0	5	1	1	0	0.5	1			124	1	25	1
NURE Seds[e]	ONCA026S1	10	1	706	1	2	0	7	1	1	1	0.5	1			106	1	350	1
NURE Seds[e]	ONCA033S1	15	1	420	1	2	0	5	0	3	1	0.2	1			47	1	23	1
NURE Seds[e]	ONCB003S1	10	0	636	1	2	0	12	1	1	1	0.7	1			75	1	37	1
NURE Seds[e]	ONCB005S1	10	0	438	1	2	0	10	1	1	0	0.8	1			71	1	30	1
NURE Seds[e]	ONCB006S1	10	1	498	1	2	0	7	1	1	0	1	1			36	1	57	1
NURE Seds[e]	ONCB007S1	10	0	755	1	2	0	15	1	1	0	0.5	1			112	1	47	1
NURE Seds[e]	ONCB010S1	20	1	554	1	2	0	20	1	1	0	0.8	1			74	1	55	1
NURE Seds[e]	ONCB011S1	10	1	776	1	2	0	12	1	2	1	0.2	1			93	1	37	1
NURE Seds[e]	ONCB012S1	10	1	540	1	2	0	12	1	1	1	0.5	1			73	1	45	1
NURE Seds[e]	ONCB013S1	10	1	681	1	2	0	15	1	2	1	0.6	1			98	1	50	1
NURE Seds[e]	ONCB014S1											0.6	1						
NURE Seds[e]	ONCB015S1	20	1	996	1	2	0	20	1	1	0	0.8	1			94	1	65	1
NURE Seds[e]	ONCB016S1	20	1	769	1	2	0	7	1	1	0	0.5	1			79	1	40	1
NURE Seds[e]	ONCB017S1	10	1	652	1	2	0	15	1	1	0	0.5	1			68	1	32	1
NURE Seds[e]	ONCB018S1	10	1	691	1	2	0	7	1	1	0	0.4	1			71	1	42	1
NURE Seds[e]	ONCB019S1	15	1	396	1	2	0	25	1	1	0	0.7	1			39	1	50	1
NURE Seds[e]	ONCB020S1	15	1	1181	1	2	0	40	1	1	0	0.6	1			151	1	65	1
NURE Seds[e]	ONCB022S1	20	1	719	1	2	0	27	1	1	0	0.7	1			48	1	65	1
NURE Seds[e]	ONCB023S1	15	1	519	1	2	0	10	1	1	0	0.5	1			33	1	275	1
NURE Seds[e]	ONCB025S1	10	1	705	1	6	1	5	1	3	1	0.6	1			25	1	57	1
NURE Seds[e]	ONCB028S1	20	1	1189	1	2	0	33	1	1	0	0.3	1			149	1	60	1
NURE Seds[e]	ONCB031S1											0.3	1						
NURE Seds[e]	ONCC001S1	10	1	985	1	2	0	5	0	1	0	0.2	1			110	1	13	1
NURE Seds[e]	ONCC002S1	10	1	395	1	2	0	5	0	1	0	0.1	1			49	1	13	1
NURE Seds[e]	ONCC004S1	10	1	439	1	2	0	5	1	1	0	0.1	1			48	1	25	1
NURE Seds[e]	ONCC007S1	10	1	467	1	2	0	8	1	1	0	0.1	1			47	1	33	1
NURE Seds[e]	ONCC013S1	10	1	511	1	2	0	5	0	3	1	0.3	1			70	1	30	1
NURE Seds[e]	ONCC014S1	15	1			2	0	8	1	1	1	0.3	1					28	1
NURE Seds[e]	ONCC015S1	25	1	579	1	2	0	5	0	1	0	0.2	1			83	1	20	1
NURE Seds[e]	ONCC016S1											0.4	1						

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCC017S1	62560	1			1	1	153	1	0.5	1			25	1	5	0	10	1	22067	1
NURE Seds[e]	ONCC018S1	63866	1			1	1	205	1	1.5	1			25	1	5	0	11	1	40847	1
NURE Seds[e]	ONCC019S1	62346	1			1	1	98	1	1	1			20	1	5	0	8	1	25207	1
NURE Seds[e]	ONCC023S1	64453	1					240	1	1	1			15	1	8	1	5	1	23740	1
NURE Seds[e]	ONCC024S1	68600	1					150	1	1	1			15	1	5	0	8	1	26120	1
NURE Seds[e]	ONCC025S1	63293	1			1	1	325	1	1	1			25	1	5	0	11	1	23713	1
NURE Seds[e]	ONCC026S1	57473	1			2	1	163	1	1	1			20	1	5	0	12	1	28213	1
NURE Seds[e]	ONCC027S1	62560	1					325	1	1	1			20	1	5	0	7	1	19887	1
NURE Seds[e]	ONCC028S1	57387	1			1	1	135	1	1	1			35	1	5	0	15	1	25687	1
NURE Seds[e]	ONCC029S1	60327	1			2	1	140	1	1	1			30	1	5	0	5	1	42280	1
NURE Seds[e]	ONCC030S1	60613	1			2	1	373	1	1	1			30	1	5	1	9	1	34953	1
NURE Seds[e]	ONCC032S1	53073	1			6	1	335	1	1	1			65	1	5	0	9	1	32293	1
NURE Seds[e]	ONCC033S1	58313	1			2	1	73	1	1.5	1			35	1	5	0	7	1	39340	1
NURE Seds[e]	ONCC034S1	55113	1			4	1	45	1	1.5	1			95	1	5	0	19	1	40187	1
NURE Seds[e]	ONCC035S1	58700	1			3	1	200	1	2	1			20	1	5	0	16	1	26720	1
NURE Seds[e]	ONCD005S1	68400	1			1	1	285	1	2	1			10	1	5	0	3	1	15547	1
NURE Seds[e]	ONCD006S1	67666	1					280	1	2.5	1			10	1	5	0	5	1	24540	1
NURE Seds[e]	ONCD007S1	56773	1			4	1	230	1	1.5	1			15	1	8	1	4	1	16567	1
NURE Seds[e]	ONCD009S1	61647	1					163	1	1	1			15	1	5	0	6	1	14173	1
NURE Seds[e]	ONCD010S1	65086	1					195	1	2	1			10	1	8	1	3	1	17433	1
NURE Seds[e]	ONCD011S1	62866	1					203	1	2	1			10	1	5	0	7	1	21287	1
NURE Seds[e]	ONCD012S1	60453	1					293	1	1.5	1			20	1	5	0	4	1	17600	1
NURE Seds[e]	ONCD014S1	61953	1					230	1	1.5	1			20	1	8	1	6	1	22413	1
NURE Seds[e]	ONCD016S1	56353	1					268	1	2	1			10	1	10	1	6	1	19480	1
NURE Seds[e]	ONCD018S1																				
NURE Seds[e]	ONCD019S1	61060	1					145	1	1.5	1			35	1	8	1	3	1	53707	1
NURE Seds[e]	ONCD022S1	59947	1					115	1	2	1			15	1	5	0	16	1	20027	1
NURE Seds[e]	ONCD024S1	62253	1			2	1	180	1	2	1			40	1	8	1	6	1	38513	1
NURE Seds[e]	ONCD025S1	61153	1					113	1	3	1			25	1	5	0	14	1	33787	1
NURE Seds[e]	ONCD028S1	59547	1					185	1	2	1			15	1	5	0	7	1	17720	1
NURE Seds[e]	ONCD029S1	62726	1			1	1	183	1	1.5	1			25	1	8	1	7	1	51687	1
NURE Seds[e]	ONCD030S1	61153	1					88	1	1.5	1			15	1	5	0	9	1	17287	1
NURE Seds[e]	ONCD032S1	59320	1					163	1	2	1			15	1	5	1	6	1	16727	1
NURE Seds[e]	ONCD033S1	55953	1			3	1	48	1	1.5	1			20	1	13	1	26	1	26827	1
NURE Seds[e]	ONCD034S1	62800	1					150	1	1	1			20	1	8	1	9	1	17840	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCC017S1	15	1	524	1	2	0	5	1	1	0	0.2	1			44	1	35	1
NURE Seds[e]	ONCC018S1	15	1	596	1	2	0	8	1	1	0	0.2	1			85	1	35	1
NURE Seds[e]	ONCC019S1	20	1	467	1	2	0	5	1	1	0	0.1	1			54	1	20	1
NURE Seds[e]	ONCC023S1	15	1	521	1	2	0	8	1	1	0	0.1	1			60	1	10	1
NURE Seds[e]	ONCC024S1	15	1	553	1	2	0	8	1	2	1	0.1	1			65	1	20	1
NURE Seds[e]	ONCC025S1	10	1	707	1	2	0	5	0	2	1	0.3	1			84	1	33	1
NURE Seds[e]	ONCC026S1	15	1	670	1	2	0	8	1	1	0	0.3	1			71	1	38	1
NURE Seds[e]	ONCC027S1	10	1	378	1	2	0	5	0	3	1	0.2	1			58	1	13	1
NURE Seds[e]	ONCC028S1	15	1	2027	1	2	0	10	1	1	0	0.3	1			72	1	40	1
NURE Seds[e]	ONCC029S1	15	1	706	1	2	0	8	1	2	1	0.2	1			106	1	18	1
NURE Seds[e]	ONCC030S1	10	1	727	1	2	0	5	0	4	1	0.3	1			107	1	23	1
NURE Seds[e]	ONCC032S1	10	1	715	1	2	0	20	1	1	0	0.2	1			88	1	28	1
NURE Seds[e]	ONCC033S1	30	1	771	1	3	1	5	0	1	0	0.3	1			112	1	15	1
NURE Seds[e]	ONCC034S1	25	1	801	1	2	0	48	1	1	0	0.2	1			97	1	53	1
NURE Seds[e]	ONCC035S1	15	1	703	1	2	0	5	1	2	1	0.3	1			58	1	40	1
NURE Seds[e]	ONCD005S1	10	1	440	1	2	0	5	0	1	1	0.2	1			39	1	15	1
NURE Seds[e]	ONCD006S1	15	1	463	1	2	0	5	0	2	1	0.3	1			46	1	10	1
NURE Seds[e]	ONCD007S1	10	1	308	1	2	0	5	0	1	0	0.2	1			36	1	18	1
NURE Seds[e]	ONCD009S1	10	0	529	1	2	0	5	0	1	0	0.2	1			54	1	28	1
NURE Seds[e]	ONCD010S1	15	1	515	1	2	0	5	1	1	0	0.3	1			58	1	10	1
NURE Seds[e]	ONCD011S1	10	1	526	1	2	0	5	1	2	1	0.1	1			45	1	33	1
NURE Seds[e]	ONCD012S1	10	1	457	1	2	1	5	0	2	1	0.1	1			56	1	13	1
NURE Seds[e]	ONCD014S1	15	1	367	1	2	0	5	1	1	0	0.2	1			65	1	15	1
NURE Seds[e]	ONCD016S1	10	1	442	1	2	0	5	0	1	0	0.1	1			52	1	13	1
NURE Seds[e]	ONCD018S1											0.5	1						
NURE Seds[e]	ONCD019S1	15	1	1077	1	5	1	5	0	3	1	0.3	1			178	1	15	1
NURE Seds[e]	ONCD022S1	15	1	686	1	2	0	13	1	4	1	0.2	1			46	1	20	1
NURE Seds[e]	ONCD024S1	15	1	703	1	2	0	10	1	1	0	0.1	1			91	1	23	1
NURE Seds[e]	ONCD025S1	20	1	1085	1	2	0	15	1	1	0	0.2	1			80	1	50	1
NURE Seds[e]	ONCD028S1	20	1	476	1	2	0	10	1	1	0	0.1	1			38	1	25	1
NURE Seds[e]	ONCD029S1	20	1	988	1	2	0	5	0	1	0	0.1	1			134	1	28	1
NURE Seds[e]	ONCD030S1	20	1	590	1	2	0	8	1	1	0	0.1	1			46	1	40	1
NURE Seds[e]	ONCD032S1	15	1	372	1	2	0	5	1	1	0	0.1	1			34	1	15	1
NURE Seds[e]	ONCD033S1	20	1	865	1	2	0	18	1	1	0	0.5	1			62	1	28	1
NURE Seds[e]	ONCD034S1	15	1	547	1	2	0	8	1	2	1	0.1	1			72	1	20	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCD036S1	56993	1					55	1	2	1			20	1	5	1	20	1	38547	1
NURE Seds[e]	ONCE006S1	60647	1			7	1	148	1	2	1			55	1	13	1	13	1	34140	1
NURE Seds[e]	ONCE007S1	59873	1			1	1	125	1	2.5	1			20	1	5	0	10	1	22340	1
NURE Seds[e]	ONCE008S1	52787	1			4	1	113	1	3	1			50	1	5	0	16	1	25700	1
NURE Seds[e]	ONCE010S1	54347	1			6	1	110	1	1.5	1			40	1	8	1	11	1	22600	1
NURE Seds[e]	ONCE012S1	63713	1			2	1	198	1	2.5	1			15	1	5	1	9	1	17500	1
NURE Seds[e]	ONCE014S1	58367	1			1	1	235	1	2.5	1			10	1	5	0	3	1	20620	1
NURE Seds[e]	ONCE015S1	58020	1			11	1	165	1	2.5	1			25	1	8	1	48	1	32340	1
NURE Seds[e]	ONCE017S1	68266	1			2	1	125	1	1	1			15	1	5	0	8	1	16153	1
NURE Seds[e]	ONCE018S1	64793	1			1	1	148	1	2	1			10	1	5	0	4	1	11973	1
NURE Seds[e]	ONCE019S1	56107	1			1	1	220	1	2	1			15	1	5	1	9	1	25167	1
NURE Seds[e]	ONCE020S1	61073	1			8	1	183	1	2	1			50	1	5	1	20	1	28973	1
NURE Seds[e]	ONCE021S1	66066	1			2	1	290	1	2	1			30	1	5	1	5	1	20280	1
NURE Seds[e]	ONCE022S1	55753	1			3	1	240	1	1.5	1			30	1	8	1	11	1	31227	1
NURE Seds[e]	ONCE023S1	57387	1			1	1	93	1	3.5	1			45	1	73	1	46	1	26940	1
NURE Seds[e]	ONCE024S1	54547	1			1	1	85	1	2	1			5	1	13	1	26	1	21660	1
NURE Seds[e]	ONCE026S1	59033	1			3	1	125	1	1.5	1			20	1	8	1	20	1	26340	1
NURE Seds[e]	ONCE027S1	61440	1			3	1	213	1	1	1			35	1	20	1	16	1	30407	1
NURE Seds[e]	ONCE030S1	53813	1			2	1	110	1	1	1			40	1	13	1	13	1	26613	1
NURE Seds[e]	ONCF001S1	60673	1			1	1	260	1	1.5	1			90	1	5	1	7	1	41367	1
NURE Seds[e]	ONCF004S1	61207	1			2	1	103	1	1	1			70	1	5	1	17	1		
NURE Seds[e]	ONCF005S1	62493	1			2	1	288	1	1.5	1			80	1	5	1	11	1	53847	1
NURE Seds[e]	ONCF006S1	58907	1			3	1	273	1	1.5	1			75	1	5	0	18	1	42780	1
NURE Seds[e]	ONCF007S1	58167	1			1	1	303	1	1.5	1			100	1	5	0	13	1	49300	1
NURE Seds[e]	ONCF008S1	64153	1					223	1	1.5	1			30	1	10	1	5	1	14467	1
NURE Seds[e]	ONCF009S1	62073	1			1	1	310	1	2	1			10	1	5	0	3	1	8260	1
NURE Seds[e]	ONCF010S1	63647	1			2	1	220	1	2.5	1			15	1	5	1	2	1	14260	1
NURE Seds[e]	ONCF012S1	65680	1			1	1	373	1	2.5	1			10	1	5	0	2	1	10973	1
NURE Seds[e]	ONCF014S1	59753	1			1	1	498	1	2.5	1			85	1	5	0	5	1	40513	1
NURE Seds[e]	ONCF019S1	53947	1			1	1	93	1	2.5	1			65	1	5	0	9	1	25787	1
NURE Seds[e]	ONCF020S1	57513	1					335	1	2.5	1			85	1	5	1	4	1	36347	1
NURE Seds[e]	ONCF021S1	256	1			1	1	193	1	2	1			75	1	5	1	7	1	38140	1
NURE Seds[e]	ONCF022S1	59760	1					425	1	2.5	1			30	1	8	1	6	1	32093	1
NURE Seds[e]	ONCF024S1	60353	1			2	1	435	1	2.5	1			60	1	5	0	9	1	32153	1
NURE Seds[e]	ONCF026S1	56780	1					395	1	2.5	1			45	1	5	1	8	1	32933	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCD036S1	25	1	1463	1	2	0	13	1	1	0	0.5	1			84	1	43	1
NURE Seds[e]	ONCE006S1	15	1	601	1	2	0	13	1	1	0	0.3	1			75	1	65	1
NURE Seds[e]	ONCE007S1	25	1	703	1	2	0	5	0	1	0	0.4	1			54	1	53	1
NURE Seds[e]	ONCE008S1	25	1	679	1	2	0	28	1	1	0	0.5	1			63	1	45	1
NURE Seds[e]	ONCE010S1	25	1	467	1	2	0	13	1	1	0	0.2	1			55	1	53	1
NURE Seds[e]	ONCE012S1	20	1	453	1	2	0	8	1	1	0	0.6	1			44	1	98	1
NURE Seds[e]	ONCE014S1	20	1	363	1	2	0	5	0	1	0	0.3	1			32	1	15	1
NURE Seds[e]	ONCE015S1	70	1	1483	1	2	0	40	1	1	0	1.2	1			78	1	1650	1
NURE Seds[e]	ONCE017S1	25	1	460	1	2	0	5	0	1	0	0.1	1			53	1	18	1
NURE Seds[e]	ONCE018S1	25	1	323	1	2	0	5	1	1	0	0.2	1			22	1	30	1
NURE Seds[e]	ONCE019S1	20	1	916	1	2	0	13	1	1	0	0.2	1			83	1	33	1
NURE Seds[e]	ONCE020S1	15	1	491	1	2	0	65	1	1	0	0.5	1			54	1	83	1
NURE Seds[e]	ONCE021S1	10	1	393	1	2	0	8	1	5	1	0.1	1			34	1	28	1
NURE Seds[e]	ONCE022S1	25	1	497	1	2	0	15	1	3	1	0.4	1			79	1	43	1
NURE Seds[e]	ONCE023S1	50	1	1512	1	2	1	85	1	8	1	0.6	1			59	1	350	1
NURE Seds[e]	ONCE024S1	40	1	1011	1	2	0	20	1	1	0	0.6	1			61	1	200	1
NURE Seds[e]	ONCE026S1	10	1	573	1	2	0	15	1	1	0	0.7	1			29	1	115	1
NURE Seds[e]	ONCE027S1	20	1	1467	1	2	0	30	1	5	1	0.5	1			60	1	95	1
NURE Seds[e]	ONCE030S1	10	1	662	1	2	0	13	1	1	0	0.5	1			82	1	28	1
NURE Seds[e]	ONCF001S1	10	0	837	1	4	1	10	1	2	1	0.5	1			158	1	28	1
NURE Seds[e]	ONCF004S1	20	1	686	1	2	0	15	1	1	0	0.5	1			104	1	65	1
NURE Seds[e]	ONCF005S1	10	1	714	1	2	0	10	1	1	0	0.3	1			133	1	43	1
NURE Seds[e]	ONCF006S1	15	1	890	1	2	0	20	1	1	0	0.5	1			139	1	40	1
NURE Seds[e]	ONCF007S1	10	0	765	1	2	0	13	1	1	0	0.5	1			143	1	40	1
NURE Seds[e]	ONCF008S1	10	1	520	1	2	0	5	0	1	0	0.3	1			59	1	15	1
NURE Seds[e]	ONCF009S1	15	1	308	1	2	1	5	0	1	0	0.3	1			17	1	18	1
NURE Seds[e]	ONCF010S1	10	0	547	1	2	0	5	0	1	0	0.4	1			33	1	13	1
NURE Seds[e]	ONCF012S1	10	0	375	1	2	0	5	0	1	0	0.2	1			21	1	8	1
NURE Seds[e]	ONCF014S1	10	0	671	1	2	0	5	0	1	1	0.4	1			109	1	25	1
NURE Seds[e]	ONCF019S1	10	1	634	1	2	0	5	0	1	0	0.4	1			80	1	90	1
NURE Seds[e]	ONCF020S1	10	1	596	1	2	0	15	1	1	0	0.4	1			95	1	13	1
NURE Seds[e]	ONCF021S1	15	1	801	1	2	0	10	1	1	0	0.4	1			72	1	20	1
NURE Seds[e]	ONCF022S1	10	0	502	1	2	0	5	1	1	0	0.3	1			73	1	28	1
NURE Seds[e]	ONCF024S1	15	1	524	1	2	0	5	1	1	0	0.3	1			94	1	40	1
NURE Seds[e]	ONCF026S1	10	0	779	1	2	0	10	1	1	1	0.2	1			121	1	23	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCF027S1	56587	1			1	1	350	1	2.5	1			55	1	5	0	8	1	30540	1
NURE Seds[e]	ONCF028S1	62186	1					323	1	2	1			65	1	5	0	8	1	34527	1
NURE Seds[e]	ONCF029S1	57853	1					470	1	2	1			65	1	5	0	6	1	47313	1
NURE Seds[e]	ONCF030S1	67000	1					385	1	2	1			25	1	8	1	11	1	28060	1
NURE Seds[e]	ONCF031S1	66346	1					463	1	2.5	1			30	1	5	0	11	1	36153	1
NURE Seds[e]	ONCF034S1																				
NURE Seds[e]	ONCG001S1	67733	1			1	1	323	1	3	1			20	1	5	1	5	1	21720	1
NURE Seds[e]	ONCG004S1	53727	1			5	1	275	1	2	1			25	1	13	1	15	1	29167	1
NURE Seds[e]	ONCG005S1	55740	1			1	1	328	1	2	1			30	1	5	0	19	1	29720	1
NURE Seds[e]	ONCG006S1	65066	1			5	1	443	1	2	1			20	1	18	1	20	1	28840	1
NURE Seds[e]	ONCG007S1	49733	1			5	1	243	1	2	1			25	1	5	0	18	1	29067	1
NURE Seds[e]	ONCG008S1																				
NURE Seds[e]	ONCG010S1	55147	1					398	1	2.5	1			15	1	5	0	4	1	24587	1
NURE Seds[e]	ONCG011S1	40380	1			1	1	400	1	2	1			20	1	20	1	24	1	28740	1
NURE Seds[e]	ONCG012S1	57047	1			1	1	515	1	2.5	1			10	1	5	0	6	1	40387	1
NURE Seds[e]	ONCG013S1	58407	1			2	1	353	1	2	1			50	1	5	0	12	1	27700	1
NURE Seds[e]	ONCG014S1	59413	1			1	1	198	1	2	1			60	1	5	1	32	1	42820	1
NURE Seds[e]	ONCG017S1	57013	1			6	1	240	1	1	1			45	1	5	0	21	1	32873	1
NURE Seds[e]	ONCG018S1	60880	1			3	1	348	1	2	1			35	1	5	0	10	1	22120	1
NURE Seds[e]	ONCG019S1	49813	1			14	1	258	1	2	1			50	1	5	0	16	1	38867	1
NURE Seds[e]	ONCG020S1	56207	1					248	1	2.5	1			30	1	5	0	8	1	19580	1
NURE Seds[e]	ONCG021S1	49787	1			1	1	250	1	2	1			45	1	5	0	4	1	21807	1
NURE Seds[e]	ONCG022S1	53627	1			1	1	318	1	2	1			30	1	5	0	3	1	15087	1
NURE Seds[e]	ONCG023S1	64373	1			2	1	318	1	2	1			25	1	5	0	3	1	18413	1
NURE Seds[e]	ONCG024S1	47027	1			6	1	180	1	2.5	1			60	1	5	0	8	1	32487	1
NURE Seds[e]	ONCG025S1	63040	1			1	1	193	1	3.5	1			25	1	5	0	10	1	22187	1
NURE Seds[e]	ONCG027S1	48013	1					133	1	2.5	1			20	1	5	0	9	1	12247	1
NURE Seds[e]	ONCG028S1	51007	1					175	1	3.5	1			25	1	5	0	12	1	29580	1
NURE Seds[e]	ONCG030S1	65006	1			1	1	190	1	3	1			25	1	5	0	5	1	16920	1
NURE Seds[e]	ONCG032S1	56753	1			3	1	280	1	2	1			40	1	5	0	19	1	25140	1
NURE Seds[e]	ONCH004S1	58947	1			3	1	210	1	2	1			55	1	5	0	18	1	32340	1
NURE Seds[e]	ONCH005S1	45933	1			2	1	200	1	1.5	1			60	1	5	0	20	1	29940	1
NURE Seds[e]	ONCH007S1	49447	1			4	1	115	1	2	1			35	1	5	0	22	1	26000	1
NURE Seds[e]	ONCH009S1	58307	1			2	1	160	1	2	1			15	1	5	1	17	1	27540	1
NURE Seds[e]	ONCH010S1	49980	1			3	1	83	1	2	1			30	1	15	1	19	1	29220	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCF027S1	20	1	540	1	2	0	8	1	1	0	0.3	1			90	1	33	1
NURE Seds[e]	ONCF028S1	20	1	656	1	2	0	10	1	1	0	0.4	1			101	1	35	1
NURE Seds[e]	ONCF029S1	20	1	730	1	2	0	8	1	1	0	0.2	1			158	1	40	1
NURE Seds[e]	ONCF030S1	10	0	538	1	2	0	8	1	1	0	0.3	1			72	1	45	1
NURE Seds[e]	ONCF031S1	15	1	587	1	2	0	5	0	1	0	0.5	1			104	1	43	1
NURE Seds[e]	ONCF034S1											0.6	1						
NURE Seds[e]	ONCG001S1	10	1	484	1	2	0	5	0	1	0	0.3	1			47	1	25	1
NURE Seds[e]	ONCG004S1	10	0	875	1	2	0	13	1	1	0	0.5	1			56	1	45	1
NURE Seds[e]	ONCG005S1	10	1	662	1	2	0	15	1	1	0	0.5	1			52	1	78	1
NURE Seds[e]	ONCG006S1	10	1	1287	1	2	0	15	1	1	0	0.5	1			72	1	55	1
NURE Seds[e]	ONCG007S1	20	1	581	1	4	1	15	1	1	0	0.7	1			56	1	103	1
NURE Seds[e]	ONCG008S1											0.8	1						
NURE Seds[e]	ONCG010S1	10	0	461	1	2	1	5	0	1	0	0.4	1			54	1	15	1
NURE Seds[e]	ONCG011S1	10	1	557	1	2	0	23	1	1	0	1.3	1			131	1	138	1
NURE Seds[e]	ONCG012S1	10	0	474	1	2	0	5	0	1	0	0.3	1			57	1	25	1
NURE Seds[e]	ONCG013S1	10	1	945	1	2	0	35	1	1	0	0.8	1			62	1	65	1
NURE Seds[e]	ONCG014S1	15	1	731	1	2	0	45	1	1	0	0.5	1			107	1	68	1
NURE Seds[e]	ONCG017S1	20	1	747	1	2	1	13	1	3	1	0.5	1			85	1	53	1
NURE Seds[e]	ONCG018S1	15	1	1039	1	2	0	8	1	2	1	0.5	1			53	1	55	1
NURE Seds[e]	ONCG019S1	20	1	552	1	4	1	15	1	2	1	0.5	1			69	1	40	1
NURE Seds[e]	ONCG020S1	10	0	567	1	2	0	5	0	3	1	0.4	1			47	1	18	1
NURE Seds[e]	ONCG021S1	10	1	469	1	2	0	5	0	2	1	0.4	1			44	1	8	1
NURE Seds[e]	ONCG022S1	15	1	533	1	2	0	5	0	1	0	0.3	1			29	1	5	1
NURE Seds[e]	ONCG023S1	15	1	602	1	2	0	5	0	2	1	0.2	1			67	1	5	1
NURE Seds[e]	ONCG024S1	15	1	783	1	2	0	5	0	2	1	0.3	1			87	1	20	1
NURE Seds[e]	ONCG025S1	20	1	470	1	2	0	10	1	1	0	0.3	1			48	1	20	1
NURE Seds[e]	ONCG027S1	20	1	496	1	4	1	8	1	2	1	0.4	1			55	1	25	1
NURE Seds[e]	ONCG028S1	15	1	951	1	2	0	5	1	1	0	0.3	1			63	1	25	1
NURE Seds[e]	ONCG030S1	20	1	457	1	2	0	5	0	1	0	0.3	1			27	1	18	1
NURE Seds[e]	ONCG032S1	10	1	499	1	4	1	15	1	2	1	0.3	1			44	1	73	1
NURE Seds[e]	ONCH004S1	20	1	835	1	2	0	18	1	1	1	0.5	1			94	1	65	1
NURE Seds[e]	ONCH005S1	15	1	409	1	2	0	15	1	1	0	0.5	1			71	1	63	1
NURE Seds[e]	ONCH007S1	15	1	753	1	4	1	8	1	2	1	0.6	1			95	1	63	1
NURE Seds[e]	ONCH009S1	20	1	1368	1	2	0	8	1	1	0	0.7	1			77	1	103	1
NURE Seds[e]	ONCH010S1	10	1	595	1	3	1	13	1	1	0	0.3	1			56	1	45	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCH011S1	50080	1			2	1	210	1	2	1			35	1	5	0	6	1	29567	1
NURE Seds[e]	ONCH013S1	58647	1			8	1	380	1	3	1			35	1	13	1	22	1	36153	1
NURE Seds[e]	ONCH016S1	32447	1			4	1	868	1	1	1			45	1	28	1	14	1	19333	1
NURE Seds[e]	ONCH017S1	35827	1			14	1	235	1	1.5	1			60	1	10	1	10	1	25420	1
NURE Seds[e]	ONCH018S1	35500	1			7	1	208	1	1.5	1			75	1	8	1	10	1	39033	1
NURE Seds[e]	ONCH020S1	41500	1			18	1	138	1	2	1			35	1	5	1	18	1	17380	1
NURE Seds[e]	ONCH021S1	51993	1			5	1	48	1	2.5	1			35	1	8	1	27	1	29940	1
NURE Seds[e]	ONCH022S1	36480	1			4	1	15	1	1.5	1			40	1	5	0	14	1	25220	1
NURE Seds[e]	ONCH024S1	54800	1			4	1	353	1	2	1			35	1	5	0	8	1	21220	1
NURE Seds[e]	ONCH025S1	44093	1			2	1	323	1	2	1			55	1	5	0	12	1	29527	1
NURE Seds[e]	ONCH028S1	47427	1			4	1	315	1	1.5	1			40	1	5	1	19	1	25533	1
NURE Seds[e]	ONCH030S1																				
NURE Seds[e]	ONCH033S1	42260	1			9	1	335	1	2	1			50	1	10	1	14	1	30313	1
NURE Seds[e]	ONCH034S1																				
NURE Seds[e]	ONDA002S1	50913	1			2	1	250	1	2	1			20	1	5	1	13	1	21040	1
NURE Seds[e]	ONDA003S1	60840	1			2	1	403	1	2.5	1			20	1	5	0	10	1	20320	1
NURE Seds[e]	ONDA004S1	61980	1			2	1	473	1	2	1			35	1	5	0	12	1	27280	1
NURE Seds[e]	ONDA005S1	63980	1			3	1	408	1	1	1			20	1	5	0	9	1	26460	1
NURE Seds[e]	ONDA006S1	64340	1			7	1	505	1	2	1			5	1	5	0	8	1	43160	1
NURE Seds[e]	ONDA007S1	66433	1			2	1	403	1	2	1			25	1	5	0	7	1	22567	1
NURE Seds[e]	ONDA010S1	70733	1			2	1	430	1	2	1			15	1	5	1	7	1	20173	1
NURE Seds[e]	ONDA014S1																				
NURE Seds[e]	ONDA015S1	61433	1					310	1	2	1			10	1	5	0	19	1	28860	1
NURE Seds[e]	ONDA019S1	68066	1			2	1	295	1	2.5	1			15	1	5	0	10	1	23440	1
NURE Seds[e]	ONDA020S1	62320	1			2	1	648	1	2	1			20	1	5	0	11	1	24360	1
NURE Seds[e]	ONDA021S1	59620	1			2	1	230	1	1.5	1			40	1	5	0	8	1	90466	1
NURE Seds[e]	ONDB005S1	57640	1			1	1	280	1	2.5	1			30	1	5	0	11	1	30307	1
NURE Seds[e]	ONDB006S1	50593	1			2	1	145	1	1.5	1			25	1	5	0	14	1	26547	1
NURE Seds[e]	ONDB007S1	60367	1			3	1	323	1	1.5	1			35	1	5	0	12	1	28860	1
NURE Seds[e]	ONDB008S1	49533	1			1	1	260	1	1.5	1			20	1	5	0	15	1	20007	1
NURE Seds[e]	ONDB010S1	40873	1			1	1	433	1	1	1			20	1	5	0	15	1	17027	1
NURE Seds[e]	ONDB011S1																				
NURE Seds[e]	ONDB012S1	59420	1			3	1	308	1	1.5	1			45	1	5	0	14	1	27500	1
NURE Seds[e]	ONDB013S1	60633	1			3	1	360	1	1.5	1			50	1	5	0	13	1	34780	1
NURE Seds[e]	ONDB014S1	54933	1			2	1	398	1	1	1			55	1	5	0	13	1	30267	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCH011S1	15	1	635	1	2	0	5	0	1	1	0.4	1			56	1	18	1
NURE Seds[e]	ONCH013S1	20	1	862	1	2	0	18	1	1	0	0.8	1			113	1	80	1
NURE Seds[e]	ONCH016S1	30	1	458	1	2	0	15	1	3	1	2.5	1			87	1	48	1
NURE Seds[e]	ONCH017S1	20	1	428	1	2	0	8	1	1	0	0.5	1			99	1	45	1
NURE Seds[e]	ONCH018S1	30	1	413	1	2	0	5	1	1	0	0.6	1			116	1	50	1
NURE Seds[e]	ONCH020S1	25	1	499	1	2	0	10	1	1	0	0.7	1			74	1	60	1
NURE Seds[e]	ONCH021S1	55	1	540	1	2	0	5	1	1	0	0.6	1			95	1	65	1
NURE Seds[e]	ONCH022S1	25	1	475	1	5	1	8	1	1	0	0.5	1			43	1	38	1
NURE Seds[e]	ONCH024S1	10	1	861	1	2	0	10	1	1	0	0.3	1			69	1	25	1
NURE Seds[e]	ONCH025S1	15	1	452	1	8	1	25	1	1	0	0.7	1			115	1	95	1
NURE Seds[e]	ONCH028S1	25	1	580	1	2	0	20	1	1	0	0.3	1			118	1	85	1
NURE Seds[e]	ONCH030S1											0.3	1						
NURE Seds[e]	ONCH033S1	20	1	437	1	2	0	13	1	3	1	0.3	1			231	1	53	1
NURE Seds[e]	ONCH034S1											0.5	1						
NURE Seds[e]	ONDA002S1	15	1	513	1	2	0	10	1	1	0	0.3	1			42	1	28	1
NURE Seds[e]	ONDA003S1	15	1	514	1	2	0	8	1	1	0	0.3	1			44	1	30	1
NURE Seds[e]	ONDA004S1	15	1	737	1	2	0	8	1	2	1	0.4	1			95	1	35	1
NURE Seds[e]	ONDA005S1	20	1	573	1	2	0	5	0	1	0	0.3	1			56	1	35	1
NURE Seds[e]	ONDA006S1	15	1	6391	1	2	0	10	1	1	0	0.3	1			80	1	28	1
NURE Seds[e]	ONDA007S1	15	1	626	1	3	1	8	1	2	1	0.3	1			54	1	35	1
NURE Seds[e]	ONDA010S1	15	1	665	1	2	0	5	0	1	0	0.3	1			39	1	33	1
NURE Seds[e]	ONDA014S1											0.2	1						
NURE Seds[e]	ONDA015S1	15	1	370	1	2	0	5	1	2	1	0.2	1			34	1	25	1
NURE Seds[e]	ONDA019S1	10	0	324	1	2	0	5	0	1	1	0.3	1			44	1	28	1
NURE Seds[e]	ONDA020S1	10	0	640	1	2	1	5	1	1	0	0.3	1			60	1	23	1
NURE Seds[e]	ONDA021S1	15	1	811	1	2	0	5	0	2	1	0.1	1			188	1	18	1
NURE Seds[e]	ONDB005S1	15	1	717	1	2	0	10	1	1	0	0.4	1			97	1	28	1
NURE Seds[e]	ONDB006S1	15	1	532	1	2	0	8	1	1	0	0.5	1			58	1	33	1
NURE Seds[e]	ONDB007S1	10	0	729	1	2	0	13	1	1	0	0.3	1			67	1	30	1
NURE Seds[e]	ONDB008S1	10	0	481	1	2	0	15	1	1	0	0.3	1			54	1	33	1
NURE Seds[e]	ONDB010S1	10	0	456	1	2	0	15	1	1	0	0.5	1			50	1	30	1
NURE Seds[e]	ONDB011S1											0.3	1						
NURE Seds[e]	ONDB012S1	15	1	765	1	2	0	18	1	1	1	0.4	1			98	1	38	1
NURE Seds[e]	ONDB013S1	10	0	649	1	2	0	20	1	4	1	0.3	1			96	1	40	1
NURE Seds[e]	ONDB014S1	10	1	757	1	2	0	8	1	1	0	0.2	1			113	1	28	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDB015S1	54927	1			3	1	290	1	1.5	1			60	1	5	0	10	1	41360	1
NURE Seds[e]	ONDB033S1	52647	1			2	1	350	1	1.5	1			30	1	5	0	12	1	18920	1
NURE Seds[e]	ONDB034S1	58580	1			3	1	428	1	1.5	1			35	1	5	0	15	1	24593	1
NURE Seds[e]	ONDB037S1	58540	1			3	1	373	1	1	1			55	1	5	0	26	1	36293	1
NURE Seds[e]	ONDB038S1	56153	1			3	1	200	1	2	1			50	1	10	1	12	1	32347	1
NURE Seds[e]	ONDC001S1	59580	1			3	1	310	1	1.5	1			15	1	5	0	3	1	20880	1
NURE Seds[e]	ONDC002S1	63846	1			3	1	355	1	1.5	1			20	1	5	0	6	1	15673	1
NURE Seds[e]	ONDC003S1	55840	1			1	1	310	1	1.5	1			20	1	5	1	9	1	24373	1
NURE Seds[e]	ONDC011S1	55807	1			1	1	38	1	1.5	1			30	1	5	0	12	1	27280	1
NURE Seds[e]	ONDC013S1	47527	1					110	1	1	1			25	1	5	0	13	1	17227	1
NURE Seds[e]	ONDD003S1	65053	1					195	1	2.5	1			15	1	5	0	7	1	24533	1
NURE Seds[e]	ONDD008S1	62260	1					250	1	1.5	1			5	1	5	0	4	1	17447	1
NURE Seds[e]	ONDD011S1	60447	1					158	1	2	1			5	1	5	0	5	1	12660	1
NURE Seds[e]	ONDD012S1	60860	1			1	1	190	1	2	1			25	1	8	1	21	1	25513	1
NURE Seds[e]	ONDD013S1	56700	1					260	1	2	1			35	1	5	0	8	1	42940	1
NURE Seds[e]	ONDD021S1	50380	1			3	1	168	1	2	1			20	1	5	0	12	1	24460	1
NURE Seds[e]	ONDE001S1	52947	1			3	1	248	1	1.5	1			25	1	5	0	13	1	29547	1
NURE Seds[e]	ONDE002S1	46880	1			1	1	53	1	2	1			15	1	5	1	14	1	39260	1
NURE Seds[e]	ONDE003S1	55760	1			2	1	205	1	2	1			20	1	5	1	11	1	32220	1
NURE Seds[e]	ONDE004S1	50007	1					90	1	2	1			30	1	8	1	10	1	61933	1
NURE Seds[e]	ONDE005S1	57307	1			1	1	153	1	2	1			15	1	10	1	10	1	35180	1
NURE Seds[e]	ONDE006S1	69333	1					195	1	3	1			15	1	5	0	7	1	24160	1
NURE Seds[e]	ONDE008S1	63953	1			2	1	283	1	2.5	1			15	1	5	0	10	1	25893	1
NURE Seds[e]	ONDE009S1	58173	1					295	1	2	1			20	1	10	1	8	1	24200	1
NURE Seds[e]	ONDE010S1	53047	1			2	1	63	1	2	1			25	1	5	0	8	1	17387	1
NURE Seds[e]	ONDE011S1																				
NURE Seds[e]	ONDE012S1	53540	1			2	1	373	1	2	1			25	1	5	0	11	1	13620	1
NURE Seds[e]	ONDE013S1	55300	1			2	1	358	1	2.5	1			95	1	5	0	8	1	64040	1
NURE Seds[e]	ONDE014S1	53173	1			2	1	113	1	2	1			30	1	5	0	14	1	23113	1
NURE Seds[e]	ONDE016S1	50840	1			2	1	260	1	2	1			50	1	5	0	12	1	21620	1
NURE Seds[e]	ONDE017S1	61507	1			2	1	163	1	2	1			20	1	5	0	10	1	24667	1
NURE Seds[e]	ONDE018S1	60413	1			2	1	175	1	2	1			25	1	5	0	10	1	19253	1
NURE Seds[e]	ONDE019S1	59780	1					190	1	1.5	1			45	1	8	1	18	1	34413	1
NURE Seds[e]	ONDE020S1	39087	1			2	1	8	1	1.5	1			25	1	8	1	11	1	18020	1
NURE Seds[e]	ONDE021S1	57620	1			2	1	223	1	2	1			30	1	5	0	12	1	22860	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDB015S1	10	1	934	1	2	0	8	1	1	1	0.4	1			123	1	25	1
NURE Seds[e]	ONDB033S1	10	1	514	1	2	1	15	1	1	0	0.4	1			61	1	30	1
NURE Seds[e]	ONDB034S1	10	1	536	1	3	1	25	1	4	1	0.3	1			60	1	38	1
NURE Seds[e]	ONDB037S1	10	0	944	1	2	0	23	1	1	1	0.3	1			97	1	65	1
NURE Seds[e]	ONDB038S1	10	0	666	1	2	1	18	1	1	0	0.3	1			81	1	28	1
NURE Seds[e]	ONDC001S1	15	1	367	1	2	0	10	1	1	1	0.2	1			67	1	8	1
NURE Seds[e]	ONDC002S1	10	1	342	1	2	0	5	0	1	0	0.3	1			41	1	13	1
NURE Seds[e]	ONDC003S1	10	1	447	1	3	1	8	1	1	0	0.4	1			38	1	38	1
NURE Seds[e]	ONDC011S1	15	1	566	1	4	1	15	1	2	1	0.3	1			56	1	45	1
NURE Seds[e]	ONDC013S1	20	1	350	1	2	0	13	1	1	0	0.3	1			64	1	43	1
NURE Seds[e]	ONDD003S1	15	1	518	1	2	1	5	1	1	0	0.3	1			50	1	20	1
NURE Seds[e]	ONDD008S1	20	1	240	1	2	0	5	1	1	0	0.5	1			33	1	20	1
NURE Seds[e]	ONDD011S1	20	1	222	1	2	1	5	1	4	1	0.3	1			29	1	8	1
NURE Seds[e]	ONDD012S1	30	1	741	1	3	1	5	1	1	0	0.5	1			67	1	98	1
NURE Seds[e]	ONDD013S1	20	1	531	1	2	1	10	1	1	0	0.3	1			99	1	23	1
NURE Seds[e]	ONDD021S1	25	1	501	1	2	1	10	1	1	0	0.4	1			55	1	80	1
NURE Seds[e]	ONDE001S1	30	1	646	1	2	1	13	1	1	0	0.4	1			103	1	45	1
NURE Seds[e]	ONDE002S1	35	1	829	1	3	1	18	1	1	0	0.5	1			65	1	50	1
NURE Seds[e]	ONDE003S1	20	1	768	1	2	1	13	1	1	0	0.4	1			97	1	48	1
NURE Seds[e]	ONDE004S1	15	1	871	1	2	0	13	1	1	0	0.4	1			216	1	40	1
NURE Seds[e]	ONDE005S1	20	1	1153	1	3	1	10	1	1	0	0.4	1			92	1	80	1
NURE Seds[e]	ONDE006S1	10	1	1057	1	5	1	13	1	1	0	0.3	1			72	1	23	1
NURE Seds[e]	ONDE008S1	30	1	603	1	2	1	10	1	1	0	0.6	1			63	1	50	1
NURE Seds[e]	ONDE009S1	15	1	593	1	2	0	15	1	1	0	0.6	1			79	1	35	1
NURE Seds[e]	ONDE010S1	20	1	677	1	3	1	15	1	1	1	0.2	1			35	1	35	1
NURE Seds[e]	ONDE011S1											0.5	1						
NURE Seds[e]	ONDE012S1	10	1	348	1	5	1	18	1	2	1	0.4	1			33	1	50	1
NURE Seds[e]	ONDE013S1	20	1	803	1	2	1	13	1	2	1	0.5	1			129	1	30	1
NURE Seds[e]	ONDE014S1	15	1	331	1	2	1	10	1	1	0	0.8	1			47	1	63	1
NURE Seds[e]	ONDE016S1	10	1	519	1	2	1	15	1	1	1	0.5	1			45	1	70	1
NURE Seds[e]	ONDE017S1	10	0	553	1	2	0	15	1	2	1	0.4	1			55	1	35	1
NURE Seds[e]	ONDE018S1	10	0	533	1	3	1	15	1	1	0	0.4	1			45	1	40	1
NURE Seds[e]	ONDE019S1	15	1	749	1	2	0	38	1	1	0	0.8	1			63	1	105	1
NURE Seds[e]	ONDE020S1	20	1	336	1	2	1	20	1	1	0	0.4	1			35	1	28	1
NURE Seds[e]	ONDE021S1	10	0	462	1	2	0	13	1	1	0	0.3	1			50	1	50	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDE022S1	61953	1			1	1	218	1	1.5	1			40	1	5	0	11	1	34680	1
NURE Seds[e]	ONDE023S1	57467	1			1	1	173	1	2	1			190	1	5	0	8	1	22507	1
NURE Seds[e]	ONDE030S1	63813	1			2	1	498	1	3	1			30	1	5	0	6	1	49693	1
NURE Seds[e]	ONDE031S1	65747	1					260	1	2	1			50	1	5	0	10	1	38680	1
NURE Seds[e]	ONDE032S1	65266	1			2	1	103	1	3	1			25	1	5	0	10	1	32040	1
NURE Seds[e]	ONDE033S1	64886	1			3	1	110	1	2	1			30	1	5	1	12	1	26280	1
NURE Seds[e]	ONDE034S1	54933	1			2	1	373	1	1.5	1			115	1	10	1	6	1	36833	1
NURE Seds[e]	ONDE036S1	56920	1			3	1	323	1	1.5	1			50	1	5	0	6	1	25487	1
NURE Seds[e]	ONDE038S1	53887	1			2	1	18	1	2	1			20	1	5	0	10	1	21853	1
NURE Seds[e]	ONDF002S1	57253	1			6	1	358	1	2	1			35	1	5	1			32687	1
NURE Seds[e]	ONDF004S1	57693	1			4	1	583	1	2.5	1			80	1	10	1			32113	1
NURE Seds[e]	ONDF005S1	57927	1					438	1	2	1			115	1	5	0			55213	1
NURE Seds[e]	ONDF016S1	53093	1					245	1	1	1			155	1	5	0			22980	1
NURE Seds[e]	ONDF018S1	67333	1			1	1	195	1	2.5	1			40	1	5	0			27493	1
NURE Seds[e]	ONDF019S1	61127	1					498	1	2	1			65	1	5	1			45847	1
NURE Seds[e]	ONDF020S1	61567	1					408	1	2	1			65	1	5	0			44420	1
NURE Seds[e]	ONDF021S1	56993	1					350	1	1.5	1			105	1	5	1			34380	1
NURE Seds[e]	ONDF022S1	63566	1					523	1	3	1			205	1	5	0			25187	1
NURE Seds[e]	ONDF024S1	56853	1			1	1	588	1	2	1			70	1	5	0			34360	1
NURE Seds[e]	ONDF026S1	60433	1			2	1	703	1	1.5	1			50	1	5	0			37460	1
NURE Seds[e]	ONDF027S1	61906	1			2	1	478	1	2	1			65	1	8	1			57067	1
NURE Seds[e]	ONDF030S1	65533	1					418	1	2	1			40	1	5	1			30953	1
NURE Seds[e]	ONDF032S1																				
NURE Seds[e]	ONDF034S1	61040	1			2	1	255	1	2	1			75	1	10	1			45693	1
NURE Seds[e]	ONDG002S1	65173	1			12	1	183	1	2.5	1			40	1	10	1			27480	1
NURE Seds[e]	ONDG005S1	60627	1			7	1	303	1	2	1			40	1	5	1			36013	1
NURE Seds[e]	ONDG006S1	67866	1			9	1	308	1	1.5	1			40	1	13	1			31213	1
NURE Seds[e]	ONDG008S1	65493	1					573	1	2	1			25	1	13	1			36513	1
NURE Seds[e]	ONDG010S1	57060	1			2	1	33	1	2	1			45	1	18	1			21640	1
NURE Seds[e]	ONDG011S1	59527	1					353	1	1.5	1			20	1	10	1			33833	1
NURE Seds[e]	ONDG014S1	71800	1			3	1	630	1	1	1			20	1	8	1			30160	1
NURE Seds[e]	ONDG015S1	67200	1			2	1	370	1	1	1			15	1	8	1			27907	1
NURE Seds[e]	ONDG016S1																				
NURE Seds[e]	ONDG017S1	41167	1			12	1	273	1	1	1			45	1	10	1			34193	1
NURE Seds[e]	ONDG023S1	49207	1			1	1	323	1	1.5	1			40	1	5	1			25647	1

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDE022S1	10	1	519	1	2	0	8	1	1	0	0.4	1			66	1	50	1
NURE Seds[e]	ONDE023S1	10	1	714	1	2	0	23	1	1	0	0.6	1			66	1	28	1
NURE Seds[e]	ONDE030S1	10	0	945	1	3	1	13	1	1	0	0.3	1			116	1	38	1
NURE Seds[e]	ONDE031S1	10	1	947	1	2	0	13	1	1	0	0.6	1			107	1	55	1
NURE Seds[e]	ONDE032S1	20	1	636	1	2	0	15	1	1	0	0.3	1			52	1	43	1
NURE Seds[e]	ONDE033S1	15	1	970	1	2	1	20	1	1	0	0.6	1			76	1	73	1
NURE Seds[e]	ONDE034S1	10	1	701	1	2	0	18	1	1	0	0.4	1			93	1	40	1
NURE Seds[e]	ONDE036S1	10	1	574	1	2	0	8	1	3	1	0.4	1			89	1	25	1
NURE Seds[e]	ONDE038S1	25	1	561	1	2	1	8	1	1	0	0.4	1			77	1	98	1
NURE Seds[e]	ONDF002S1	10	1	725	1	2	0	20	1	1	0	0.3	1			92	1	50	1
NURE Seds[e]	ONDF004S1	15	1	558	1	2	0	15	1	1	0	0.6	1			102	1	35	1
NURE Seds[e]	ONDF005S1	15	1	883	1	2	0	15	1	1	0	0.3	1			167	1	53	1
NURE Seds[e]	ONDF016S1	20	1	654	1	2	0	25	1	1	0	0.3	1			190	1	40	1
NURE Seds[e]	ONDF018S1	30	1	761	1	2	1	38	1	1	0	0.3	1			88	1	48	1
NURE Seds[e]	ONDF019S1	15	1	843	1	2	0	53	1	1	0	0.3	1			111	1	45	1
NURE Seds[e]	ONDF020S1	10	1	800	1	2	0	18	1	1	0	0.4	1			115	1	60	1
NURE Seds[e]	ONDF021S1	10	1	702	1	2	0	18	1	1	0	0.4	1			109	1	23	1
NURE Seds[e]	ONDF022S1	10	0	547	1	2	0	35	1	1	0	0.6	1			66	1	83	1
NURE Seds[e]	ONDF024S1	10	0	929	1	2	0	23	1	1	0	0.3	1			85	1	68	1
NURE Seds[e]	ONDF026S1	15	1	554	1	2	0	15	1	1	0	0.3	1			97	1	43	1
NURE Seds[e]	ONDF027S1	10	1	685	1	2	0	20	1	1	0	0.3	1			131	1	40	1
NURE Seds[e]	ONDF030S1	10	1	911	1	2	1	13	1	1	0	0.5	1			91	1	40	1
NURE Seds[e]	ONDF032S1											0.4	1						
NURE Seds[e]	ONDF034S1	10	1	1295	1	2	1	13	1	1	0	0.3	1			147	1	43	1
NURE Seds[e]	ONDG002S1	20	1	356	1	3	1	25	1	1	0	0.4	1			60	1	50	1
NURE Seds[e]	ONDG005S1	15	1	776	1	2	0	38	1	1	0	0.5	1			75	1	45	1
NURE Seds[e]	ONDG006S1	10	1	517	1	2	1	23	1	5	1	0.1	0			60	1	50	1
NURE Seds[e]	ONDG008S1	10	1	701	1	2	0	18	1	1	0	0.1	1			58	1	38	1
NURE Seds[e]	ONDG010S1	35	1	665	1	2	1	30	1	1	0	0.1	1			90	1	65	1
NURE Seds[e]	ONDG011S1	10	1	613	1	3	1	10	1	1	0	0.1	0			47	1	63	1
NURE Seds[e]	ONDG014S1	10	1	756	1	29	1	15	1	1	0	0.3	1			45	1	43	1
NURE Seds[e]	ONDG015S1	15	1	565	1	13	1	15	1	1	0	0.3	1			38	1	35	1
NURE Seds[e]	ONDG016S1											0.3	1						
NURE Seds[e]	ONDG017S1	20	1	898	1	25	1	33	1	1	0	0.5	1			66	1	113	1
NURE Seds[e]	ONDG023S1	10	1	298	1	13	1	23	1	1	0	0.1	0			46	1	33	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDG024S1	51853	1			4	1	420	1	1	1			45	1	5	1			35733	1
NURE Seds[e]	ONDG026S1	71533	1			2	1	630	1	1.5	1			20	1	5	0			17687	1
NURE Seds[e]	ONDG028S1	61640	1			1	1	535	1	2	1			35	1	5	1			14973	1
NURE Seds[e]	ONDH001S1	46347	1			1	1	443	1	1.5	1			50	1	8	1			32287	1
NURE Seds[e]	ONDH003S1	40873	1			7	1	190	1	1	1			35	1	10	1			30773	1
NURE Seds[e]	ONDH005S1	47933	1			4	1	83	1	1.7	1			20	1					27753	1
NURE Seds[e]	ONDH008S1	46867	1			3	1	458	1	1.5	1			45	1	5	1			92466	1
NURE Seds[e]	ONDH009S1	24213	1			2	1	528	1	1	1			70	1	13	1			15887	1
NURE Seds[e]	ONDH010S1	43187	1			1	1	460	1	1.5	1			70	1	10	1			17120	1
NURE Seds[e]	ONDH012S1	60273	1					488	1	2	1			85	1	15	1			34940	1
NURE Seds[e]	ONDH013S1	56500	1			9	1	368	1	1.5	1			35	1	15	1			29000	1
NURE Seds[e]	ONDH015S1	49720	1			7	1	638	1	2	1			25	1	15	1			34460	1
NURE Seds[e]	ONDH016S1	55733	1			4	1	440	1	1	1			35	1	10	1			33987	1
NURE Seds[e]	ONDH017S1	42707	1			2	1	503	1	1.5	1			30	1	8	1			35313	1
NURE Seds[e]	ONDH018S1	47373	1			4	1	423	1	1	1			45	1	5	1			33067	1
NURE Seds[e]	ONDH019S1	72733	1			8	1	300	1	1	1			45	1	10	1			39567	1
NURE Seds[e]	ONDH021S1	60080	1			14	1	288	1	1	1			55	1	10	1			37900	1
NURE Seds[e]	ONDH022S1	56147	1			13	1	333	1	1.5	1			40	1	13	1			38447	1
NURE Seds[e]	ONDH023S1	92533	1			13	1	310	1	0.5	1			40	1	10	1			32127	1
NURE Seds[e]	ONDH024S1	53613	1			9	1	228	1	0.5	1			25	1	8	1			54100	1
NURE Seds[e]	RZAE014S1	57385	1			2	1	227	1	1.5	1			110	1	12	1	15	1	41187	1
NURE Seds[e]	RZAE027S1	55282	1			5	1	352	1	1.5	1			110	1	10	1	13	1	49660	1
NURE Seds[e]	RZAE032S1	60615	1			1	1	419	1	2	1			100	1	5	1	12	1	33180	1
NURE Seds[e]	RZAE033S1	62384	1			3	1	557	1	1.5	1			65	1	5	0	7	1	32480	1
NURE Seds[e]	RZAE034S1	76720	1			2	1	397	1	2	1			100	1	7	1	13	1	37787	1
NURE Seds[e]	RZAE035S1	72362	1					347	1	2	1			120	1	5	1	9	1	45980	1
NURE Seds[e]	RZAE037S1	65856	1			4	1	334	1	2.5	1			110	1	5	1	21	1	42633	1
NURE Seds[e]	RZAE038S1	63448	1			7	1	547	1	2.5	1			105	1	5	1	14	1	38553	1
NURE Seds[e]	RZAE039S1	61572	1			3	1	392	1	3	1			95	1	10	1	17	1	30500	1
NURE Seds[e]	RZAE040S1	92278	1			1	1	492	1	2.5	1			85	1	5	1	13	1	39133	1
NURE Seds[e]	RZAE041S1	63700	1			3	1	477	1	2	1			105	1	5	1	8	1	41527	1
NURE Seds[e]	RZAF006S1	43328	1			4	1	367	1	1.5	1			100	1	5	1	13	1	33753	1
NURE Seds[e]	RZAF012S1	44164	1			2	1	342	1	1.5	1			120	1	17	1	18	1	41000	1
NURE Seds[e]	RZAF014S1	46210	1			3	1	302	1	2	1			120	1	7	1	13	1	35833	1
NURE Seds[e]	RZAF016S1	50072	1			2	1	304	1	1.5	1			180	1	20	1	17	1	57000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDG024S1	15	1	459	1	10	1	23	1	1	0	0.3	1			66	1	43	1
NURE Seds[e]	ONDG026S1	10	1	293	1	15	1	8	1	1	0	0.2	1			47	1	30	1
NURE Seds[e]	ONDG028S1	10	0	239	1	15	1	13	1	1	0	0.2	1			35	1	30	1
NURE Seds[e]	ONDH001S1	10	1	416	1	10	1	18	1	1	0	0.2	1			103	1	33	1
NURE Seds[e]	ONDH003S1	45	1	532	1	15	1	35	1	1	0	0.7	1			54	1	183	1
NURE Seds[e]	ONDH005S1	50	1	943	1	5	1			1	0					85	1		
NURE Seds[e]	ONDH008S1	15	1	618	1	19	1	15	1	1	0	0.3	1			208	1	23	1
NURE Seds[e]	ONDH009S1	35	1	279	1	15	1	83	1	1	0	4.5	1			57	1	23	1
NURE Seds[e]	ONDH010S1	20	1	503	1	9	1	18	1	1	0	0.1	1			123	1	28	1
NURE Seds[e]	ONDH012S1	15	1	844	1	20	1	38	1	1	0	0.5	1			91	1	93	1
NURE Seds[e]	ONDH013S1	35	1	613	1	15	1	28	1	1	0	0.1	1			69	1	73	1
NURE Seds[e]	ONDH015S1	10	1	666	1	9	1	45	1	1	0	0.3	1			159	1	75	1
NURE Seds[e]	ONDH016S1	10	1	745	1	11	1	48	1	1	0	0.5	1			80	1	25	1
NURE Seds[e]	ONDH017S1	10	0	474	1	10	1	18	1	1	0	0.8	1			113	1	90	1
NURE Seds[e]	ONDH018S1	10	0	446	1	2	0	18	1	1	0	0.1	1			94	1	60	1
NURE Seds[e]	ONDH019S1	10	1	669	1	2	0	18	1	1	0	0.3	1			181	1	33	1
NURE Seds[e]	ONDH021S1	35	1	743	1	2	0	30	1	1	0	0.1	1			154	1	68	1
NURE Seds[e]	ONDH022S1	15	1	759	1	2	0	13	1	1	0	0.1	1			113	1	28	1
NURE Seds[e]	ONDH023S1	10	0	834	1	2	0	8	1	1	0	0.1	1			126	1	48	1
NURE Seds[e]	ONDH024S1	10	0	1135	1	2	1	8	1	1	0	0.3	1			140	1	33	1
NURE Seds[e]	RZAE014S1	10	0	541	1	2	1	5	1	1	0	0.1	1			72	1	37	1
NURE Seds[e]	RZAE027S1	10	0	632	1	2	0	5	1	1	0	0.1	1			90	1	50	1
NURE Seds[e]	RZAE032S1	10	0	747	1	3	1	7	1	1	0	0.1	1			84	1	42	1
NURE Seds[e]	RZAE033S1	10	0	428	1	2	1	5	0	1	0	0.1	1			55	1	17	1
NURE Seds[e]	RZAE034S1	20	1	575	1	3	1	7	1	1	0	0.1	1			58	1	55	1
NURE Seds[e]	RZAE035S1	15	1			2	0	5	1	1	0	0.1	1			97	1	37	1
NURE Seds[e]	RZAE037S1	15	1	639	1	2	1	5	1	1	0	0.1	1			88	1	55	1
NURE Seds[e]	RZAE038S1	10	0	620	1	2	0	5	1	2	1	0.1	1			71	1	47	1
NURE Seds[e]	RZAE039S1	15	1			4	1	7	1	1	1	0.2	1			45	1	80	1
NURE Seds[e]	RZAE040S1	20	1	878	1	3	1	5	0	1	1	0.2	1			54	1	108	1
NURE Seds[e]	RZAE041S1	20	1	690	1	2	0	5	1	1	0	0.1	1			89	1	25	1
NURE Seds[e]	RZAF006S1	15	1	630	1	2	0	12	1	1	0	0.3	1			91	1	35	1
NURE Seds[e]	RZAF012S1	10	1	864	1	2	0	17	1	1	1	0.1	1			127	1	52	1
NURE Seds[e]	RZAF014S1	10	1	648	1	2	0	7	1	1	0	0.1	1			100	1	35	1
NURE Seds[e]	RZAF016S1	10	1	1007	1	2	0	12	1	1	0	0.2	1			182	1	55	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	RZAF017S1	43323	1			2	1	294	1	2	1			110	1	12	1	13	1	34100	1
NURE Seds[e]	RZAF021S1	45738	1			4	1	472	1	2.5	1			85	1	15	1	14	1	35740	1
NURE Seds[e]	RZAF022S1	45595	1			2	1	379	1	1.5	1			85	1	7	1	17	1	33393	1
NURE Seds[e]	RZAF024S1	64205	1			4	1	399	1	4.5	1			230	1	32	1	106	1	84066	1
NURE Seds[e]	RZAF025S1	50528	1					469	1	2	1			150	1	7	1	17	1	42580	1
NURE Seds[e]	RZAF028S1	43210	1			4	1	387	1	2.5	1			85	1	5	1	11	1	39325	1
NURE Seds[e]	RZAF032S1	41236	1			6	1	424	1	2	1			145	1	5	0	15	1	43327	1
NURE Seds[e]	RZAF033S1	54308	1			8	1	384	1	3	1			120	1	7	1	18	1	78539	1
NURE Seds[e]	RZAG001S1	42159	1			6	1	432	1	2.5	1			120	1	10	1	17	1	30767	1
NURE Seds[e]	RZAG003S1	40215	1			6	1	369	1	2	1			95	1	12	1	17	1	62280	1
NURE Seds[e]	RZAG007S1	46698	1			2	1	432	1	2	1			70	1	10	1	13	1	68053	1
NURE Seds[e]	RZAG008S1	42240	1			2	1	277	1	2	1			105	1	5	1	13	1	33393	1
NURE Seds[e]	RZAG009S1																				
NURE Seds[e]	RZAG014S1	39252	1			2	1	284	1	2.5	1			110	1	17	1	11	1	27760	1
NURE Seds[e]	RZAG015S1	47579	1			5	1	287	1	2	1			80	1	10	1	9	1	28300	1
NURE Seds[e]	RZAG016S1	39733	1			4	1	277	1	1.5	1			155	1	10	1	8	1	67333	1
NURE Seds[e]	RZAG018S1	57641	1			6	1	367	1	2	1			110	1	10	1	16	1	32093	1
NURE Seds[e]	RZAG019S1	60410	1			1	1	354	1	2	1			90	1	12	1	9	1	34687	1
NURE Seds[e]	RZAG020S1	56512	1			6	1	387	1	2.5	1			105	1	17	1	17	1	26207	1
NURE Seds[e]	RZAG021S1	60000	1			3	1	314	1	2.5	1			95	1	12	1	12	1	49883	1
NURE Seds[e]	RZAG028S1	56410	1			4	1	314	1	2	1			105	1	7	1	22	1	33333	1
NURE Seds[e]	RZAG029S1	60564	1			1	1	392	1	2	1			110	1	7	1	11	1	38113	1
NURE Seds[e]	RZAG030S1	50635	1			5	1	244	1	1.5	1			90	1	10	1	19	1	21707	1
NURE Seds[e]	RZAG032S1	66564	1			2	1	464	1	2.5	1			140	1	5	1	9	1	61060	1
NURE Seds[e]	RZAG033S1	62102	1			1	1	447	1	2.5	1			125	1	5	0	8	1	79800	1
NURE Seds[e]	RZAG035S1	68102	1			1	1	419	1	2.5	1			120	1	5	0	7	1	69600	1
NURE Seds[e]	RZAH001S1	36267	1			2	1	275	1	1.5	1			90	1	12	1	13	1	53329	1
NURE Seds[e]	RZAH005S1	52000	1			15	1	215	1	2	1			80	1	12	1	21	1	35293	1
NURE Seds[e]	RZAH006S1	53231	1			3	1	208	1	2.5	1			80	1	12	1	10	1	35973	1
NURE Seds[e]	RZAH007S1	61025	1			4	1	228	1	1	1			75	1	10	1	12	1	33520	1
NURE Seds[e]	RZAH008S1	53692	1			2	1	218	1	1.5	1			90	1	10	1	12	1	5000	0
NURE Seds[e]	RZAH009S1	61589	1			3	1	210	1	1.5	1			85	1	7	1	14	1	47927	1
NURE Seds[e]	RZAH010S1	52718	1			1	1	250	1	1.5	1			45	1	7	1	15	1	41353	1
NURE Seds[e]	RZAH013S1	52102	1			5	1	210	1	2.5	1			85	1	12	1	12	1	5000	0
NURE Seds[e]	RZAH014S1	29252	1			7	1	203	1	1.5	1			95	1	10	1	13	1	5000	0

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	RZAF017S1	10	0	595	1	2	0	22	1	1	0	0.3	1			78	1	37	1
NURE Seds[e]	RZAF021S1	20	1	740	1	2	0	20	1	1	0	0.3	1			86	1	55	1
NURE Seds[e]	RZAF022S1	15	1	605	1	2	0	20	1	1	1	0.1	1			67	1	47	1
NURE Seds[e]	RZAF024S1	10	1	1029	1	17	1	115	1	1	0	1.2	1			101	1	180	1
NURE Seds[e]	RZAF025S1	15	1	921	1	2	0	27	1	1	0	0.1	1			140	1	42	1
NURE Seds[e]	RZAF028S1	10	0	456	1	3	1	25	1	1	0	0.3	1			48	1	50	1
NURE Seds[e]	RZAF032S1	10	1	735	1	2	1	27	1	1	0	0.2	1			103	1	42	1
NURE Seds[e]	RZAF033S1	20	1	707	1	2	0	25	1	2	1	0.1	1			92	1	65	1
NURE Seds[e]	RZAG001S1	20	1			2	0	20	1	1	0	0.4	1			44	1	52	1
NURE Seds[e]	RZAG003S1	10	1	633	1	3	1	25	1	1	0	0.3	1			83	1	47	1
NURE Seds[e]	RZAG007S1	10	0	565	1	2	1	5	0	1	0	0.1	1			86	1	27	1
NURE Seds[e]	RZAG008S1	10	0	809	1	2	0	22	1	5	1	0.2	1			91	1	52	1
NURE Seds[e]	RZAG009S1											0.3	1						
NURE Seds[e]	RZAG014S1	10	1	486	1	2	1	12	1	1	0	0.3	1			86	1	35	1
NURE Seds[e]	RZAG015S1	10	0	367	1	2	0	7	1	1	0	0.4	1			50	1	35	1
NURE Seds[e]	RZAG016S1	20	1	779	1	2	0	15	1	1	0	0.1	1			197	1	40	1
NURE Seds[e]	RZAG018S1	10	1	699	1	4	1	17	1	1	0	0.4	1			89	1	50	1
NURE Seds[e]	RZAG019S1	15	1	523	1	4	1	22	1	1	0	0.3	1			81	1	27	1
NURE Seds[e]	RZAG020S1	10	0	508	1	2	0	25	1	1	1	0.3	1			49	1	50	1
NURE Seds[e]	RZAG021S1	10	0	663	1	2	1	10	1	1	0	0.3	1			76	1	20	1
NURE Seds[e]	RZAG028S1	10	0	949	1	3	1	12	1	1	1	0.3	1			75	1	52	1
NURE Seds[e]	RZAG029S1	10	0	783	1	2	0	7	1	1	0	0.2	1			82	1	32	1
NURE Seds[e]	RZAG030S1	10	0	669	1	2	0	10	1	1	1	0.2	1			61	1	60	1
NURE Seds[e]	RZAG032S1	10	1	861	1	2	1	12	1	1	0	0.1	1			118	1	40	1
NURE Seds[e]	RZAG033S1	10	0	949	1	2	1	10	1	1	0	0.1	1			182	1	15	1
NURE Seds[e]	RZAG035S1	10	0	806	1	2	0	5	0	1	0	0.1	1			138	1	30	1
NURE Seds[e]	RZAH001S1	10	0	556	1	2	0	10	1	1	1	0.2	1			86	1	35	1
NURE Seds[e]	RZAH005S1	10	1	646	1	2	0	10	1	1	0	0.1	1			74	1	47	1
NURE Seds[e]	RZAH006S1	10	0	543	1	2	1	7	1	1	0	0.1	1			89	1	30	1
NURE Seds[e]	RZAH007S1	10	1	697	1	2	0	5	1	1	0	0.1	1			77	1	32	1
NURE Seds[e]	RZAH008S1	10	1	683	1	2	1	12	1	1	1	0.4	1			155	1	45	1
NURE Seds[e]	RZAH009S1	10	1	807	1	2	1	7	1	1	0	0.3	1			129	1	40	1
NURE Seds[e]	RZAH010S1	10	0	640	1	2	0	7	1	1	0	0.3	1			82	1	45	1
NURE Seds[e]	RZAH013S1	10	1	625	1	2	1	5	1	1	0	0.3	1			110	1	40	1
NURE Seds[e]	RZAH014S1	10	0	423	1	2	0	10	1	1	0	0.3	1			76	1	47	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	RZAH015S1	56051	1			13	1	175	1	2	1			65	1	7	1	12	1	23427	1
NURE Seds[e]	RZAH016S1	49358	1			4	1	200	1	1.5	1			120	1	12	1	9	1	51080	1
NURE Seds[e]	RZAH017S1	50620	1			2	1	143	1	2	1			75	1	10	1	10	1	37747	1
NURE Seds[e]	RZAH019S1	56358	1			2	1	323	1	1	1			195	1	5	1	9	1	6284	0
NURE Seds[e]	RZAH020S1	35272	1			7	1	188	1	1.5	1			125	1	10	1	12	1	5000	0
NURE Seds[e]	RZAH021S1																				
NURE Seds[e]	RZAH023S1	66102	1			32	1	120	1	4.5	1			70	1	10	1	11	1	74016	1
NURE Seds[e]	RZAH024S1	56615	1			6	1	900	1	3	1			30	1	5	1	8	1	27667	1
NURE Seds[e]	RZAH026S1	48302	1			4	1	150	1	2.5	1			65	1	7	1	11	1	23053	1
NURE Seds[e]	RZAH027S1																				
NURE Seds[e]	RZAH028S1																				
NURE Seds[e]	RZAH029S1	53077	1			9	1	280	1	3	1			110	1	12	1	17	1	42373	1
NURE Seds[e]	RZAH030S1	61641	1			6	1	163	1	2	1			85	1	15	1	12	1	37687	1
NURE Seds[e]	RZAH032S1	58974	1			13	1	296	1	2	1			75	1	10	1	15	1	52416	1
NURE Seds[e]	RZAH034S1	56512	1			8	1	210	1	1.5	1			80	1	7	1	13	1		
NURE Seds[e]	RZAH035S1	62820	1			17	1	193	1	2.5	1			75	1	10	1	10	1	32427	1
NURE Seds[e]	RZAH036S1	65538	1			4	1	213	1	3	1			80	1	7	1	14	1	35067	1
NURE Seds[e]	RZBG017S1	58358	1			2	1	242	1	2	1			65	1	7	1	15	1	33253	1
NURE Seds[e]	RZBG019S1	56769	1			5	1	237	1	2	1			75	1	7	1	10	1	42033	1
NURE Seds[e]	RZBG020S1																				
NURE Seds[e]	RZBH001S1	61025	1			5	1	345	1	2	1			90	1	10	1	18	1	29467	1
NURE Seds[e]	RZBH002S1	57641	1			4	1	227	1	1	1			85	1	10	1	13	1	33087	1
NURE Seds[e]	RZBH006S1	61282	1			4	1	247	1	2	1			85	1	7	1	15	1	38613	1
NURE Seds[e]	RZBH007S1	60923	1			4	1	200	1	2	1			90	1	5	0	12	1	38160	1
NURE Seds[e]	RZBH008S1	55385	1			6	1	135	1	1.5	1			85	1	7	1	8	1	65160	1
NURE Seds[e]	RZBH009S1	62308	1			5	1	160	1	2	1			65	1	7	1	10	1	36000	1
NURE Seds[e]	RZBH010S1					3	1	265	1	1.5	1			95	1	10	1	15	1		
NURE Seds[e]	SKAA001S1	54260	1			2	1	225	1	1.5	1			15	1	5	1	17	1	32127	1
NURE Seds[e]	SKAA002S1	57913	1			3	1	220	1	1.5	1			20	1	10	1	15	1	34427	1
NURE Seds[e]	SKAA003S1	59260	1			3	1	177	1	5	1			10	1	5	0	8	1	18060	1
NURE Seds[e]	SKAA004S1	62000	1			3	1	222	1	2	1			25	1	12	1	12	1	33040	1
NURE Seds[e]	SKAA005S1	65293	1			3	1	252	1	1.5	1			25	1	5	0	12	1	21467	1
NURE Seds[e]	SKAA008S1	61180	1			5	1	155	1	2	1			20	1	7	1	11	1	27553	1
NURE Seds[e]	SKAA011S1	63340	1			5	1	242	1	1.5	1			20	1	7	1	15	1	32567	1
NURE Seds[e]	SKAA012S1	61587	1			5	1	222	1	1.5	1			25	1	10	1	35	1	36813	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	RZAH015S1	10	0	531	1	2	0	5	1	1	0	0.2	1			62	1	25	1
NURE Seds[e]	RZAH016S1	10	1	477	1	2	0	10	1	1	0	0.2	1			81	1	27	1
NURE Seds[e]	RZAH017S1	10	1	905	1	2	0	5	1	1	1	0.4	1			101	1	32	1
NURE Seds[e]	RZAH019S1	10	1	837	1	2	1	10	1	1	1	0.3	1			180	1	30	1
NURE Seds[e]	RZAH020S1	10	1	453	1	2	0	10	1	1	1	0.3	1			60	1	30	1
NURE Seds[e]	RZAH021S1									1	0	0.5	1						
NURE Seds[e]	RZAH023S1	15	1	761	1	2	0	5	1	1	0	0.3	1			124	1	27	1
NURE Seds[e]	RZAH024S1	10	0	826	1	2	1	5	1	1	0	0.1	1			75	1	20	1
NURE Seds[e]	RZAH026S1	10	1	336	1	2	1	5	1	1	0	0.3	1			43	1	35	1
NURE Seds[e]	RZAH027S1									1	0	0.1	1						
NURE Seds[e]	RZAH028S1									1	0	0.3	1						
NURE Seds[e]	RZAH029S1	10	1	841	1	2	0	7	1	1	0	0.2	1			109	1	63	1
NURE Seds[e]	RZAH030S1	15	1	608	1	2	0	7	1	2	1	0.2	1			88	1	55	1
NURE Seds[e]	RZAH032S1	10	0	507	1	2	0	7	1	1	0	0.2	1			62	1	40	1
NURE Seds[e]	RZAH034S1	10	1	587	1	2	1	10	1	1	0	0.4	1			75	1	45	1
NURE Seds[e]	RZAH035S1	10	1	956	1	2	1	5	1	1	0	0.1	1			86	1	42	1
NURE Seds[e]	RZAH036S1	10	0	693	1	2	0	7	1	1	0	0.3	1			82	1	30	1
NURE Seds[e]	RZBG017S1	10	0	611	1	2	1	7	1	1	1	0.2	1			69	1	40	1
NURE Seds[e]	RZBG019S1	10	0	621	1	2	0	12	1	1	0	0.3	1			124	1	32	1
NURE Seds[e]	RZBG020S1											0.3	1						
NURE Seds[e]	RZBH001S1	10	0	675	1	3	1	10	1	1	0	0.2	1			63	1	47	1
NURE Seds[e]	RZBH002S1	10	0	1002	1	2	1	7	1	3	1	0.4	1			70	1	37	1
NURE Seds[e]	RZBH006S1	10	1	695	1	4	1	10	1	1	0	0.2	1			117	1	40	1
NURE Seds[e]	RZBH007S1	10	0	539	1	2	1	10	1	1	0	0.3	1			88	1	35	1
NURE Seds[e]	RZBH008S1	10	1	817	1	2	0	7	1	1	0	0.2	1			253	1	35	1
NURE Seds[e]	RZBH009S1	10	1	600	1	2	0	7	1	1	0	0.3	1			85	1	30	1
NURE Seds[e]	RZBH010S1	10	1			3	1	10	1	1	0	0.1	1					40	1
NURE Seds[e]	SKAA001S1	10	0	597	1	2	0	10	1	1	0	0.2	1			62	1	42	1
NURE Seds[e]	SKAA002S1	10	1	724	1	2	0	12	1	1	0	0.2	1			113	1	42	1
NURE Seds[e]	SKAA003S1	10	0	829	1	2	0	12	1	1	0	0.2	1			29	1	20	1
NURE Seds[e]	SKAA004S1	10	0	784	1	2	0	10	1	1	0	0.5	1			91	1	45	1
NURE Seds[e]	SKAA005S1	10	0	268	1	2	0	10	1	1	0	0.4	1			62	1	35	1
NURE Seds[e]	SKAA008S1	10	0	578	1	2	0	15	1	1	0	0.4	1			65	1	50	1
NURE Seds[e]	SKAA011S1	10	0	490	1	2	1	12	1	1	0	0.3	1			79	1	50	1
NURE Seds[e]	SKAA012S1	10	0	416	1	2	0	15	1	1	0	0.2	1			64	1	42	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAA013S1	60473	1			7	1	282	1	2	1			20	1	5	1	17	1	29627	1
NURE Seds[e]	SKAA014S1	58427	1			7	1	272	1	1.5	1			25	1	12	1	22	1	46060	1
NURE Seds[e]	SKAA015S1	59020	1			3	1	245	1	1.5	1			20	1	5	1	20	1	27233	1
NURE Seds[e]	SKAA016S1	53920	1			2	1	330	1	1	1			25	1	5	1	6	1	28153	1
NURE Seds[e]	SKAA017S1																				
NURE Seds[e]	SKAA018S1	67800	1			4	1	325	1	1	1			35	1	7	1	15	1	36113	1
NURE Seds[e]	SKAA019S1	56260	1			2	1	297	1	1.5	1			30	1	5	1	7	1	31627	1
NURE Seds[e]	SKAA020S1	51427	1			4	1	150	1	1	1			25	1	7	1	14	1	29333	1
NURE Seds[e]	SKAA021S1	57893	1			4	1	227	1	1	1			30	1	10	1	10	1	37693	1
NURE Seds[e]	SKAA022S1	65000	1			1	1	230	1	1.5	1			25	1	5	0	4	1	26240	1
NURE Seds[e]	SKAA024S1	46440	1			8	1	267	1	1.5	1			20	1	7	1	9	1	67066	1
NURE Seds[e]	SKAA025S1	60420	1					282	1	1	1			40	1	7	1	4	1	45233	1
NURE Seds[e]	SKAA026S1	64720	1			2	1	210	1	1	1			30	1	5	0	4	1	28953	1
NURE Seds[e]	SKAA027S1	104066	1			4	1	235	1	1.5	1			35	1	5	0	4	1	51960	1
NURE Seds[e]	SKAA028S1	62413	1			4	1	152	1	1.5	1			20	1	7	1	17	1	36040	1
NURE Seds[e]	SKAA029S1	74866	1			2	1	240	1	1	1			15	1	5	1	13	1	31867	1
NURE Seds[e]	SKAA030S1	60167	1			3	1	187	1	1	1			20	1	5	1	10	1	26907	1
NURE Seds[e]	SKAA031S1	57627	1			3	1	160	1	0.5	1			30	1	5	1	13	1	34807	1
NURE Seds[e]	SKAA032S1	53780	1			3	1	187	1	1	1			25	1	7	1	8	1	37380	1
NURE Seds[e]	SKAA034S1	55613	1			3	1	125	1	1	1			25	1	7	1	10	1	38127	1
NURE Seds[e]	SKAA035S1	56000	1			6	1	232	1	1	1			40	1	10	1	20	1	28013	1
NURE Seds[e]	SKAA036S1	58327	1			2	1	227	1	1.5	1			30	1	10	1	10	1	34827	1
NURE Seds[e]	SKAA037S1																				
NURE Seds[e]	SKAA038S1	54033	1			7	1	185	1	1.5	1			25	1	7	1	19	1	31353	1
NURE Seds[e]	SKAB001S1	70000	1			6	1	262	1	1.5	1			30	1	7	1	12	1	47327	1
NURE Seds[e]	SKAB002S1	71666	1			3	1	207	1	2.5	1			20	1	7	1	13	1	31393	1
NURE Seds[e]	SKAB003S1	74333	1			4	1	127	1	1.5	1			30	1	5	1	10	1	28147	1
NURE Seds[e]	SKAB004S1	80533	1			5	1	235	1	1	1			40	1	7	1	14	1	40233	1
NURE Seds[e]	SKAB007S1	61353	1			4	1	142	1	1	1			30	1	10	1	19	1	32493	1
NURE Seds[e]	SKAB009S1	81533	1			3	1	202	1	2	1			30	1	5	0	11	1	22340	1
NURE Seds[e]	SKAB010S1	84000	1			7	1	202	1	1	1			30	1	7	1	15	1	43027	1
NURE Seds[e]	SKAB011S1	55013	1			1	1	175	1	1	1			20	1	12	1	15	1	38740	1
NURE Seds[e]	SKAB013S1	56013	1			6	1	247	1	1.5	1			30	1	5	1	17	1	33100	1
NURE Seds[e]	SKAB014S1	37320	1			4	1	255	1	1.5	1			20	1	12	1	15	1	35540	1
NURE Seds[e]	SKAB017S1																				

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAA013S1	10	1	413	1	2	0	15	1	1	0	0.2	1			74	1	127	1
NURE Seds[e]	SKAA014S1	15	1	925	1	2	0	20	1	1	1	0.2	1			99	1	75	1
NURE Seds[e]	SKAA015S1	10	0	409	1	2	0	12	1	1	0	0.3	1			58	1	40	1
NURE Seds[e]	SKAA016S1	10	0	619	1	2	0	7	1	1	0	0.3	1			63	1	47	1
NURE Seds[e]	SKAA017S1											0.4	1						
NURE Seds[e]	SKAA018S1	10	1	608	1	3	1	12	1	1	0	0.5	1			66	1	47	1
NURE Seds[e]	SKAA019S1	10	0	928	1	2	0	7	1	1	0	0.3	1			74	1	32	1
NURE Seds[e]	SKAA020S1	20	1	903	1	2	1	12	1	1	0	0.2	1			63	1	62	1
NURE Seds[e]	SKAA021S1	10	0	766	1	2	0	15	1	1	0	0.5	1			76	1	60	1
NURE Seds[e]	SKAA022S1	10	1	638	1	2	0	10	1	7	1	0.2	1			86	1	17	1
NURE Seds[e]	SKAA024S1	10	1	728	1	2	0	12	1	1	0	0.3	1			155	1	30	1
NURE Seds[e]	SKAA025S1	10	1	652	1	2	0	5	1	2	1	0.2	1			112	1	25	1
NURE Seds[e]	SKAA026S1	10	0	721	1	3	1	7	1	1	0	0.3	1			87	1	22	1
NURE Seds[e]	SKAA027S1	15	1	1156	1	2	0	10	1	1	0	0.3	1			185	1	22	1
NURE Seds[e]	SKAA028S1	10	1	1631	1	2	0	12	1	1	0	0.7	1			89	1	67	1
NURE Seds[e]	SKAA029S1	15	1	942	1	2	0	15	1	1	0	0.5	1			95	1	60	1
NURE Seds[e]	SKAA030S1	10	0	673	1	2	1	12	1	1	0	0.1	1			58	1	37	1
NURE Seds[e]	SKAA031S1	15	1	1297	1	2	0	15	1	1	0	0.3	1			96	1	62	1
NURE Seds[e]	SKAA032S1	10	0	582	1	2	0	5	1	1	0	0.6	1			108	1	27	1
NURE Seds[e]	SKAA034S1	10	0	679	1	2	1	7	1	1	0	0.5	1			123	1	35	1
NURE Seds[e]	SKAA035S1	10	1	641	1	3	1	12	1	1	0	0.6	1			60	1	52	1
NURE Seds[e]	SKAA036S1	15	1	709	1	2	1	10	1	2	1	0.3	1			70	1	50	1
NURE Seds[e]	SKAA037S1											0.3	1						
NURE Seds[e]	SKAA038S1	15	1	1847	1	2	1	17	1	1	0	0.5	1			47	1	55	1
NURE Seds[e]	SKAB001S1	10	1	794	1	2	0	12	1	1	0	0.3	1			187	1	45	1
NURE Seds[e]	SKAB002S1	15	1	903	1	2	0	12	1	1	0	0.5	1			67	1	75	1
NURE Seds[e]	SKAB003S1	10	1	584	1	2	0	12	1	1	0	0.4	1			72	1	50	1
NURE Seds[e]	SKAB004S1	10	1	859	1	3	1	17	1	3	1	0.4	1			99	1	65	1
NURE Seds[e]	SKAB007S1	10	0	1029	1	2	0	15	1	2	1	0.3	1			64	1	80	1
NURE Seds[e]	SKAB009S1	10	0	627	1	2	0	10	1	1	0	0.4	1			69	1	47	1
NURE Seds[e]	SKAB010S1	10	1	749	1	2	0	12	1	1	0	0.6	1			122	1	62	1
NURE Seds[e]	SKAB011S1	15	1	808	1	2	0	10	1	1	0	0.6	1			91	1	72	1
NURE Seds[e]	SKAB013S1	15	1	921	1	2	0	17	1	1	0	0.6	1			88	1	87	1
NURE Seds[e]	SKAB014S1	10	1	602	1	2	0	12	1	1	0	0.4	1			65	1	55	1
NURE Seds[e]	SKAB017S1											2.2	1						

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAB018S1	52513	1			5	1	302	1	1.5	1			25	1	35	1	14	1	44807	1
NURE Seds[e]	SKAB020S1	60367	1			2	1	292	1	1	1			30	1	30	1	13	1	40080	1
NURE Seds[e]	SKAB021S1	77133	1			1	1	195	1	1.5	1			25	1	15	1	10	1	29140	1
NURE Seds[e]	SKAB022S1	63373	1			6	1	262	1	1.5	1			25	1	22	1	15	1	30000	1
NURE Seds[e]	SKAB023S1	69400	1			4	1	262	1	1.5	1			30	1	22	1	13	1	31120	1
NURE Seds[e]	SKAB024S1	65313	1			1	1	292	1	1.5	1			35	1	17	1	12	1	32500	1
NURE Seds[e]	SKAB029S1	60093	1			3	1	260	1	1.5	1			30	1	25	1	17	1	35927	1
NURE Seds[e]	SKAB031S1	61320	1			2	1	330	1	2	1			55	1	15	1	7	1	61933	1
NURE Seds[e]	SKAB032S1	64813	1			2	1	312	1	1.5	1			25	1	17	1	20	1	35740	1
NURE Seds[e]	SKAB033S1	57947	1			2	1	375	1	2.5	1			65	1	22	1	8	1	71000	1
NURE Seds[e]	SKAB034S1	62247	1			2	1	272	1	1.5	1			30	1	17	1	6	1	37960	1
NURE Seds[e]	SKAB035S1	58727	1			10	1	285	1	1.5	1			60	1	37	1	10	1	45487	1
NURE Seds[e]	SKAB036S1	57473	1			4	1	442	1	1.5	1			25	1	12	1	4	1	25040	1
NURE Seds[e]	SKAC001S1	52773	1			6	1	162	1	1.5	1			25	1	15	1	9	1	21487	1
NURE Seds[e]	SKAC002S1	48833	1			10	1	115	1	1	1			20	1	32	1	19	1	50607	1
NURE Seds[e]	SKAC003S1	58747	1			7	1	232	1	1.5	1			25	1	32	1	17	1	37047	1
NURE Seds[e]	SKAC005S1	54120	1			7	1	292	1	1.5	1			15	1	22	1	13	1	36900	1
NURE Seds[e]	SKAC006S1	51933	1			2	1	342	1	2	1			20	1	25	1	10	1	29353	1
NURE Seds[e]	SKAC010S1	50607	1			2	1	185	1	2	1			25	1	15	1	6	1	31667	1
NURE Seds[e]	SKAC011S1	67666	1			1	1	250	1	2	1			20	1	7	1	4	1	17487	1
NURE Seds[e]	SKAC012S1	64333	1			2	1	232	1	2	1			20	1	12	1	4	1	26747	1
NURE Seds[e]	SKAC013S1																				
NURE Seds[e]	SKAC014S1	54000	1			5	1	167	1	1.5	1			25	1	20	1	10	1	33273	1
NURE Seds[e]	SKAC018S1	60160	1			2	1	257	1	2	1			15	1	22	1	21	1	25713	1
NURE Seds[e]	SKAC019S1	52207	1			4	1	352	1	1	1			40	1	27	1	15	1	31567	1
NURE Seds[e]	SKAC022S1	63613	1			5	1	402	1	0.5	1			50	1	35	1	17	1	32940	1
NURE Seds[e]	SKAC023S1	58293	1			6	1	347	1	0.5	0			35	1	27	1	15	1	40707	1
NURE Seds[e]	SKAC024S1	60520	1			3	1	267	1	0.5	1			30	1	22	1	11	1	44093	1
NURE Seds[e]	SKAC025S1	63680	1			5	1	272	1	0.5	0			25	1	25	1	13	1	27013	1
NURE Seds[e]	SKAC028S1	63606	1			1	1	420	1	0.5	1			15	1	20	1	11	1	23753	1
NURE Seds[e]	SKAC030S1	61647	1			3	1	302	1	1.5	1			25	1	22	1	15	1	33233	1
NURE Seds[e]	SKAC038S1	53033	1			3	1	245	1	1.5	1			25	1	20	1	8	1	25353	1
NURE Seds[e]	SKAC040S1	86200	1			4	1	240	1	1.5	1			35	1	20	1	8	1	41467	1
NURE Seds[e]	SKAC042S1	55680	1			3	1	322	1	1	1			25	1	20	1	9	1	26367	1
NURE Seds[e]	SKAC044S1	56780	1			4	1	222	1	1	1			15	1	27	1	14	1	27320	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAB018S1	15	1	681	1	2	0	12	1	1	1	1.7	1			97	1	52	1
NURE Seds[e]	SKAB020S1	15	1	723	1	2	0	10	1	1	0	1.4	1			109	1	47	1
NURE Seds[e]	SKAB021S1	25	1	389	1	2	0	5	0	1	0	0.8	1			98	1	45	1
NURE Seds[e]	SKAB022S1	20	1	915	1	2	0	12	1	1	0	0.8	1			68	1	45	1
NURE Seds[e]	SKAB023S1	20	1	615	1	2	0	10	1	1	0	1.1	1			67	1	55	1
NURE Seds[e]	SKAB024S1	20	1	719	1	2	0	5	1	1	0	0.7	1			94	1	25	1
NURE Seds[e]	SKAB029S1	15	1	503	1	2	1	7	1	1	0	1	1			72	1	55	1
NURE Seds[e]	SKAB031S1	20	1	915	1	2	0	17	1	1	0	0.9	1			164	1	30	1
NURE Seds[e]	SKAB032S1	10	1	643	1	2	0	5	1	1	0	1	1			93	1	42	1
NURE Seds[e]	SKAB033S1	20	1	859	1	2	0	5	0	1	0	1.1	1			196	1	47	1
NURE Seds[e]	SKAB034S1	10	0	823	1	2	0	17	1	1	0	1.1	1			116	1	35	1
NURE Seds[e]	SKAB035S1	15	1	795	1	2	0	5	1	1	0	1.5	1			101	1	67	1
NURE Seds[e]	SKAB036S1	15	1	367	1	2	0	22	1	1	0	0.2	1			57	1	15	1
NURE Seds[e]	SKAC001S1	15	1	562	1	2	0	5	1	1	0	1.1	1			59	1	50	1
NURE Seds[e]	SKAC002S1	20	1	476	1	5	1	15	1	1	0	1.1	1			54	1	42	1
NURE Seds[e]	SKAC003S1	20	1	1198	1	2	0	20	1	1	0	1.2	1			72	1	72	1
NURE Seds[e]	SKAC005S1	15	1	692	1	2	0	17	1	1	0	1.5	1			82	1	55	1
NURE Seds[e]	SKAC006S1	15	1	1124	1	2	0	15	1	1	0	1.5	1			49	1	77	1
NURE Seds[e]	SKAC010S1	15	1	771	1	2	0	5	1	1	0	0.8	1			61	1	32	1
NURE Seds[e]	SKAC011S1	15	1	350	1	2	1	5	0	1	0	0.6	1			38	1	22	1
NURE Seds[e]	SKAC012S1	20	1	780	1	2	0	7	1	1	0	0.3	1			60	1	20	1
NURE Seds[e]	SKAC013S1											0.2	1						
NURE Seds[e]	SKAC014S1	15	1	875	1	2	0	5	0	1	0	0.9	1			55	1	47	1
NURE Seds[e]	SKAC018S1	20	1	498	1	2	0	5	0	1	0	2.2	1			56	1	47	1
NURE Seds[e]	SKAC019S1	20	1	949	1	2	0	5	0	1	0	0.8	1			60	1	80	1
NURE Seds[e]	SKAC022S1	15	1	954	1	2	0	10	1	1	0	1	1			76	1	105	1
NURE Seds[e]	SKAC023S1	15	1	949	1	2	0	10	1	1	0	0.8	1			81	1	67	1
NURE Seds[e]	SKAC024S1	15	1	874	1	2	0	10	1	1	0	0.7	1			96	1	37	1
NURE Seds[e]	SKAC025S1	15	1	605	1	3	1	5	1	1	1	0.6	1			62	1	50	1
NURE Seds[e]	SKAC028S1	15	1	667	1	4	1	5	0	4	1	0.9	1			69	1	35	1
NURE Seds[e]	SKAC030S1	10	0	694	1	3	1	10	1	5	1	0.8	1			75	1	42	1
NURE Seds[e]	SKAC038S1	15	1	514	1	2	0	5	1	2	1	0.7	1			56	1	32	1
NURE Seds[e]	SKAC040S1	10	1	810	1	2	0	5	1	5	1	0.6	1			150	1	32	1
NURE Seds[e]	SKAC042S1	15	1	413	1	2	0	5	1	2	1	0.6	1			51	1	32	1
NURE Seds[e]	SKAC044S1	10	1	555	1	3	1	5	1	3	1	0.7	1			72	1	51	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAD001S1	59000	1			7	1	385	1	1.5	1			20	1	30	1	12	1	30927	1
NURE Seds[e]	SKAD002S1	66300	1			3	1	377	1	3	1			20	1	15	1	7	1	30560	1
NURE Seds[e]	SKAD004S1	49607	1			3	1	295	1	1	1			25	1	22	1	7	1	38153	1
NURE Seds[e]	SKAD018S1	77133	1			2	1	355	1	3	1			15	1	20	1	5	1	20540	1
NURE Seds[e]	SKAD019S1	62113	1			3	1	362	1	2	1			25	1	15	1	7	1	17707	1
NURE Seds[e]	SKAD020S1	65893	1			3	1	267	1	2	1			30	1	25	1	20	1	34067	1
NURE Seds[e]	SKAD021S1	66146	1			1	1	357	1	3.5	1			15	1	10	1	3	1	17793	1
NURE Seds[e]	SKAD022S1	68933	1			2	1	97	1	4	1			20	1	10	1	3	1	18267	1
NURE Seds[e]	SKAD033S1	70800	1			3	1	332	1	1	1			20	1	17	1	5	1	19800	1
NURE Seds[e]	SKAD034S1	64753	1			5	1	502	1	0.5	0			15	1	12	1	4	1	21813	1
NURE Seds[e]	SKAD036S1	75133	1			1	1	390	1	4	1			20	1	7	1	3	1	22087	1
NURE Seds[e]	SKAD037S1	69466	1			1	1	300	1	2.5	1			15	1	12	1	4	1	17873	1
NURE Seds[e]	SKAD038S1	65640	1			2	1	422	1	2.5	1			15	1	7	1	3	1	25960	1
NURE Seds[e]	SKAD039S1	63200	1			4	1	320	1	4	1			20	1	22	1	25	1	32580	1
NURE Seds[e]	SKAD040S1	65447	1			2	1	410	1	1.5	1			15	1	10	1	4	1	25707	1
NURE Seds[e]	SKAD043S1	71400	1			1	1	352	1	1.5	1			10	1	10	1	3	1	21173	1
NURE Seds[e]	SKAD050S1	64860	1			2	1	345	1	3	1			25	1	17	1	13	1	23593	1
NURE Seds[e]	SKBA006S1	59753	1			4	1	282	1	1	1			30	1	22	1	13	1	31900	1
NURE Seds[e]	SKBA007S1	54433	1			4	1	352	1	1.5	1			20	1	22	1	15	1	23400	1
NURE Seds[e]	SKBA009S1	54933	1			4	1	205	1	1.5	1			30	1	22	1	12	1	31887	1
NURE Seds[e]	SKBA010S1	54160	1			5	1	260	1	1.5	1			30	1	27	1	14	1	35880	1
NURE Seds[e]	SKBA011S1	57140	1			6	1	205	1	1.5	1			25	1	22	1	33	1	31687	1
NURE Seds[e]	SKBA038S1	55360	1			3	1	285	1	0.5	1			15	1	45	1	19	1	84800	1
NURE Seds[e]	SKBB007S1	62213	1			2	1	220	1	0.5	1			25	1	17	1	11	1	35327	1
NURE Seds[e]	SKBB009S1																				
NURE Seds[e]	SKBB010S1	48887	1			3	1	600	1	0.5	1			15	1	32	1	18	1	44613	1
NURE Seds[e]	SKBB021S1	55820	1			6	1	187	1	1.5	1			25	1	17	1	11	1		
NURE Seds[e]	SKBB023S1	55720	1			2	1	182	1	0.5	1			15	1	17	1	12	1	36720	1
NURE Seds[e]	SKBB024S1	44427	1			3	1	105	1	0.5	1			25	1	15	1	6	1	79066	1
NURE Seds[e]	SKBB026S1	69266	1			3	1	192	1	0.5	1			20	1	20	1	8	1	54333	1
NURE Seds[e]	SKBB027S1	500	0			5	1	207	1	1	1			20	1	22	1	11	1	68400	1
NURE Seds[e]	SKBB030S1	58073	1					202	1	1	1			5	1	22	1	11	1	51407	1
NURE Seds[e]	SKBB032S1	69733	1			4	1	158	1	1	1			25	1	20	1	14	1	31833	1
NURE Seds[e]	SKBC013S1	500	0			9	1	292	1	1.5	1			260	1	17	1	12	1	45907	1
NURE Seds[e]	SKBD008S1	56167	1			2	1	182	1	1	1			20	1	22	1	8	1	28393	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAD001S1	15	1	538	1	2	0	5	0	3	1	1	1			57	1	42	1
NURE Seds[e]	SKAD002S1	10	0	703	1	2	0	5	1	1	0	0.8	1			86	1	27	1
NURE Seds[e]	SKAD004S1	15	1	529	1	2	1	5	0	1	1	0.8	1			92	1	30	1
NURE Seds[e]	SKAD018S1	15	1	833	1	3	1	5	0	2	1	0.5	1			45	1	52	1
NURE Seds[e]	SKAD019S1	15	1	508	1	2	0	5	1	4	1	0.4	1			46	1	27	1
NURE Seds[e]	SKAD020S1	10	0	450	1	3	1	7	1	1	1	0.7	1			54	1	52	1
NURE Seds[e]	SKAD021S1	15	1	800	1	2	0	7	1	2	1	0.3	1			26	1	20	1
NURE Seds[e]	SKAD022S1	10	1	1178	1	2	1	5	0	4	1	0.2	1			31	1	25	1
NURE Seds[e]	SKAD033S1	10	1	429	1	2	0	5	1	4	1	0.3	1			55	1	32	1
NURE Seds[e]	SKAD034S1	10	0	610	1	2	0	7	1	1	0	0.2	1			58	1	22	1
NURE Seds[e]	SKAD036S1	10	0	956	1	2	0	5	1	1	1	0.3	1			45	1	25	1
NURE Seds[e]	SKAD037S1	10	1	661	1	2	1	5	0	1	1	0.2	1			34	1	32	1
NURE Seds[e]	SKAD038S1	10	1	1956	1	2	0	5	0	1	1	0.1	1			61	1	20	1
NURE Seds[e]	SKAD039S1	20	1	1001	1	2	0	12	1	1	0	0.6	1			58	1	42	1
NURE Seds[e]	SKAD040S1	10	0	647	1	2	0	5	0	1	0	0.2	1			56	1	30	1
NURE Seds[e]	SKAD043S1	10	0	732	1	2	0	5	0	1	1	0.1	1			36	1	45	1
NURE Seds[e]	SKAD050S1	10	1	771	1	3	1	5	0	1	1	0.5	1			42	1	32	1
NURE Seds[e]	SKBA006S1	10	1	697	1	2	0	5	0	1	0	0.6	1			80	1	30	1
NURE Seds[e]	SKBA007S1	10	1	560	1	2	0	10	1	1	0	0.8	1			64	1	37	1
NURE Seds[e]	SKBA009S1	10	1	638	1	2	0	5	1	1	0	0.6	1			74	1	37	1
NURE Seds[e]	SKBA010S1	15	1	637	1	2	0	5	1	1	0	0.5	1			81	1	40	1
NURE Seds[e]	SKBA011S1	15	1	652	1	2	0	5	0	1	0	0.6	1			96	1	37	1
NURE Seds[e]	SKBA038S1	20	1	1125	1	2	0	12	1	2	1	0.8	1			257	1	82	1
NURE Seds[e]	SKBB007S1	10	0	585	1	2	0	20	1	1	1	0.5	1			71	1	35	1
NURE Seds[e]	SKBB009S1											0.8	1						
NURE Seds[e]	SKBB010S1	20	1	1553	1	2	0	15	1	1	1	0.4	1			128	1	60	1
NURE Seds[e]	SKBB021S1	20	1	551	1	2	0	12	1	4	1	0.5	1			75	1	40	1
NURE Seds[e]	SKBB023S1	10	1	593	1	2	0	7	1	1	1	0.7	1			56	1	32	1
NURE Seds[e]	SKBB024S1	15	1	999	1	2	0	7	1	2	1	0.4	1			258	1	25	1
NURE Seds[e]	SKBB026S1	10	1	886	1	2	0	10	1	1	1	0.5	1			171	1	40	1
NURE Seds[e]	SKBB027S1	10	1	1220	1	2	0	12	1	1	1	0.4	1					42	1
NURE Seds[e]	SKBB030S1	10	1	928	1	2	0	7	1	1	1	0.6	1			110	1	37	1
NURE Seds[e]	SKBB032S1	10	1	730	1	2	0	10	1	2	1	0.5	1			93	1	55	1
NURE Seds[e]	SKBC013S1	15	1	1178	1	2	0	12	1	1	1	0.2	1			10	0	62	1
NURE Seds[e]	SKBD008S1	10	1	1047	1	2	0	7	1	1	1	0.3	1			94	1	22	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
SMITH13A[f]	C-353907	58300	1	1.19	1	9.7	1	845	1	1.8	1	0.5	1	21	1	7.8	1	17.9	1	22900	1
SMITH13A[f]	C-353917	72800	1	0.39	1	3.3	1	863	1	1.8	1	0.4	1	32	1	9.5	1	18.6	1	24500	1
SMITH13A[f]	C-353923	55300	1	1.99	1	17.3	1	698	1	1.1	1	0.3	1	51	1	14.7	1	48.8	1	31700	1
SMITH13A[f]	C-353956	64100	1	1.03	1	6.2	1	864	1	1.9	1	0.3	1	44	1	9.4	1	16.4	1	25900	1
SMITH13A[f]	C-354185	67000	1	1.16	1	6.9	1	900	1	1.9	1	0.4	1	25	1	8.6	1	18.7	1	26100	1
SMITH13A[f]	C-354224	65300	1	1.01	1	5.8	1	878	1	1.7	1	0.2	1	52	1	9.3	1	16.8	1	28700	1

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
SMITH13A[f]	C-353907	24.5	1	1210	1	1.16	1	14.3	1	0.2	0	1	0	0.6	1	46	1	99	1
SMITH13A[f]	C-353917	12.3	1	603	1	1.17	1	15.5	1	0.3	1	1	0	0.3	1	81	1	75	1
SMITH13A[f]	C-353923	14.9	1	1080	1	1.05	1	29.1	1	0.4	1	1	0	0.3	1	106	1	104	1
SMITH13A[f]	C-353956	21.6	1	553	1	0.79	1	21.9	1	0.2	0	1	0	0.5	1	68	1	67	1
SMITH13A[f]	C-354185	22.3	1	1360	1	1.24	1	17.3	1	0.2	0	1	0	0.7	1	53	1	111	1
SMITH13A[f]	C-354224	16.4	1	544	1	0.84	1	25.1	1	0.2	0	1	0	0.5	1	71	1	71	1

Notes provided at end of attachment.

Table C4-2. ProUCL input of metal and metalloid concentrations by partial digestion methods for screened background samples

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
CHURC08A[a]	DSOR102S1-CHURC08A	26200	1			3.5	1	194	1	1.3	1	0.17	1	18.1	1	6.7	1	16.6	1	20000	1
CHURC08A[a]	DSOR118S1	15700	1			7.9	1	133	1	0.77	1	0.16	1	17.1	1	6.8	1	16.6	1	19800	1
CHURC08A[a]	DSOR119S1	16700	1			3	1	132	1	0.75	1	0.11	1	10.2	1	5.9	1	11.4	1	14500	1
CHURC08A[a]	DSOR120S1	21900	1			4	1	116	1	1.4	1	0.19	1	11	1	5.2	1	12.3	1	19400	1
CHURC08A[a]	DSOR121S1	14600	1			8.5	1	111	1	1	1	0.33	1	14.3	1	6.8	1	15.7	1	19200	1
CHURC08A[a]	DSOR126S1	25400	1			3.9	1	194	1	0.87	1	0.26	1	10.1	1	5	1	21.7	1	15000	1
CHURC08A[a]	DSOR127S1	15500	1			4.6	1	167	1	1	1	0.35	1	12.6	1	6.5	1	12.4	1	17700	1
CHURC08A[a]	DSOR129S1-CHURC08A	13250	1			7.45	1	95.55	1	0.8	1	0.145	1	11.35	1	5.75	1	16.25	1	16250	1
CHURC08A[a]	DSOR131S1	25700	1			4	1	134	1	1.2	1	0.19	1	12.1	1	5.1	1	16.4	1	19200	1
CHURC08A[a]	DSOR133S1	14400	1			5.2	1	89.7	1	0.9	1	0.14	1	12.1	1	4.9	1	14.6	1	16400	1
CHURC08A[a]	DSOR134S1-CHURC08A	17400	1			5.3	1	104.5	1	1.25	1	0.23	1	12.1	1	4.8	1	13.75	1	19400	1
CHURC08A[a]	DSOR135S1	13000	1			21.2	1	102	1	0.68	1	0.27	1	16.4	1	7.4	1	18.4	1	21700	1
CHURC08A[a]	DSOR315S1-CHURC08A	27200	1			11.6	1	169	1	1.1	1	0.16	1	23.1	1	10.4	1	29.2	1	23200	1
CHURC08A[a]	DSOR340S1	14100	1			20.2	1	137	1	0.78	1	0.23	1	19.6	1	9.8	1	22.8	1	24900	1
CHURC08A[a]	DSOR341S1	11700	1			20	1	98.3	1	0.66	1	0.18	1	15.6	1	7.1	1	18.5	1	20400	1
CHURC08A[a]	DSOR379S1-CHURC08A	26200	1			17.3	1	330	1	1.1	1	0.26	1	18.5	1	9.4	1	38.8	1	20900	1
CHURC08A[a]	DSOR388S1-CHURC08A	21400	1			4.3	1	152	1	1.1	1	0.07	1	14.1	1	7.8	1	13.4	1	21000	1
CHURC08A[a]	DSOR389S1-CHURC08A	16100	1			14	1	159	1	1.8	1	0.22	1	10.9	1	6.7	1	18.9	1	19000	1
CHURC08A[a]	DSOR403S1-CHURC08A	14900	1			2.4	1	109	1	1.1	1	0.24	1	7.2	1	5	1	8.3	1	15800	1
CHURC08A[a]	DSOR404S1-CHURC08A	14700	1			2.3	1	170	1	0.54	1	0.19	1	7.4	1	2.9	1	8.3	1	12400	1
CHURC08A[a]	DSOR415S1-CHURC08A	25100	1			2.8	1	342	1	1.1	1	0.25	1	12.9	1	6.3	1	12.9	1	17300	1
CHURC08A[a]	DSOR417S1-CHURC08A	44100	1			4	1	432	1	1.7	1	0.2	1	18.6	1	7.8	1	27.8	1	23800	1
CHURC08A[a]	DSOR418S1-CHURC08A	32200	1			18.3	1	290	1	1	1	0.32	1	14	1	9.9	1	26.2	1	20800	1
CHURC08A[a]	DSOR421S1-CHURC08A	21800	1			5	1	153	1	1.2	1	0.15	1	12.5	1	5.2	1	13.8	1	20600	1
CHURC08A[a]	DSOR422S1-CHURC08A	25600	1			2.2	1	167	1	1	1	0.26	1	11.4	1	4.8	1	14.7	1	15300	1
CHURC08A[a]	DSOR423S1-CHURC08A	23800	1			2.7	1	201	1	1	1	0.23	1	14.1	1	7.2	1	14.9	1	18400	1
CHURC08A[a]	DSOR424S1-CHURC08A	27400	1			8.5	1	358	1	3	1	0.36	1	18.7	1	11	1	22.6	1	26600	1
CHURC08A[a]	DSOR425S1-CHURC08A	23500	1			3.4	1	218	1	0.83	1	0.44	1	15.3	1	7.5	1	15.4	1	18500	1
CHURC08A[a]	DSOR426S1-CHURC08A	20400	1			1.7	1	183	1	1	1	0.17	1	13.4	1	5.7	1	10.8	1	16900	1
CHURC08A[a]	DSOR439S1-CHURC08A	20900	1			37.3	1	257	1	0.7	1	0.29	1	14.5	1	6.4	1	23.9	1	22100	1
CHURC08A[a]	DSOR440S1-CHURC08A	30500	1			182	1	324	1	1.3	1	0.65	1	19.6	1	20.4	1	46.9	1	31800	1
CHURC08A[a]	DSOR441S1-CHURC08A	23000	1			8.5	1	164	1	1.5	1	0.3	1	13.5	1	7.2	1	15.1	1	20500	1
CHURC08A[a]	DSOR442S1-CHURC08A	19500	1			3.7	1	414	1	0.8	1	0.33	1	15.4	1	6.5	1	23.3	1	14700	1
CHURC08A[a]	DSOR443S1-CHURC08A	19800	1			3.9	1	202	1	0.84	1	0.33	1	18.4	1	7.4	1	16.5	1	17200	1
CHURC08A[a]	DSOR445S1-CHURC08A	28100	1			7.7	1	172	1	1.8	1	0.23	1	19.9	1	10.4	1	21.2	1	23200	1
CHURC08A[a]	DSOR447S1-CHURC08A	32700	1			10.1	1	296	1	1.7	1	0.59	1	26.6	1	14.4	1	34.7	1	28700	1
CHURC08A[a]	DSOR449S1-CHURC08A	17400	1			2.1	1	192	1	1.1	1	0.22	1	9.8	1	7.1	1	9	1	17800	1

Notes provided at end of attachment.

Table C4-2. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
CHURC08A[a]	DSOR102S1-CHURC08A	14.1	1	548	1	0.33	1	12.5	1					0.22	1	30.9	1	58.2	1
CHURC08A[a]	DSOR118S1	14.6	1	391	1	1.2	1	14.2	1					0.25	1	30.7	1	58.6	1
CHURC08A[a]	DSOR119S1	12.2	1	559	1	0.43	1	8.8	1					0.21	1	22	1	49.4	1
CHURC08A[a]	DSOR120S1	22.2	1	331	1	0.26	1	9.4	1					0.2	1	27.6	1	80.4	1
CHURC08A[a]	DSOR121S1	22.1	1	641	1	0.53	1	12.1	1					0.24	1	27.7	1	90.2	1
CHURC08A[a]	DSOR126S1	14.4	1	639	1	0.44	1	9.2	1					0.17	1	22.2	1	73	1
CHURC08A[a]	DSOR127S1	21.2	1	903	1	0.76	1	10.7	1					0.27	1	27.8	1	82.8	1
CHURC08A[a]	DSOR129S1-CHURC08A	12.3	1	658.5	1	1.55	1	8.5	1					0.24	1	32.8	1	43.4	1
CHURC08A[a]	DSOR131S1	16.8	1	480	1	0.64	1	9.7	1					0.23	1	24.3	1	68.5	1
CHURC08A[a]	DSOR133S1	12.3	1	420	1	0.76	1	9	1					0.22	1	26.7	1	58.1	1
CHURC08A[a]	DSOR134S1-CHURC08A	17.15	1	433	1	0.305	1	9.2	1					0.23	1	28.65	1	98.05	1
CHURC08A[a]	DSOR135S1	18.8	1	482	1	0.49	1	13.5	1					0.19	1	27.6	1	67.4	1
CHURC08A[a]	DSOR315S1-CHURC08A	12.4	1	560	1	0.9	1	18.7	1					0.29	1	39.1	1	49.6	1
CHURC08A[a]	DSOR340S1	20.3	1	540	1	0.5	1	17.3	1					0.2	1	34.4	1	69.1	1
CHURC08A[a]	DSOR341S1	16.8	1	453	1	0.42	1	12.8	1					0.15	1	26.4	1	58	1
CHURC08A[a]	DSOR379S1-CHURC08A	20.4	1	522	1	0.42	1	16	1					0.28	1	33.4	1	49.8	1
CHURC08A[a]	DSOR388S1-CHURC08A	12.1	1	532	1	0.77	1	10.8	1					0.21	1	40.5	1	43.2	1
CHURC08A[a]	DSOR389S1-CHURC08A	24.4	1	591	1	3.5	1	9.2	1					0.28	1	36.3	1	49	1
CHURC08A[a]	DSOR403S1-CHURC08A	22.9	1	958	1	1.2	1	5.6	1					0.33	1	24.6	1	72.2	1
CHURC08A[a]	DSOR404S1-CHURC08A	12.7	1	529	1	0.44	1	5.7	1					0.2	1	20	1	115	1
CHURC08A[a]	DSOR415S1-CHURC08A	18.7	1	1150	1	0.52	1	12.4	1					0.29	1	26.5	1	85.1	1
CHURC08A[a]	DSOR417S1-CHURC08A	14.9	1	656	1	0.36	1	22.6	1					0.26	1	35.2	1	79.6	1
CHURC08A[a]	DSOR418S1-CHURC08A	18.3	1	596	1	0.84	1	20.4	1					0.24	1	28.7	1	75.2	1
CHURC08A[a]	DSOR421S1-CHURC08A	16.8	1	515	1	0.56	1	10.1	1					0.29	1	32.4	1	70.2	1
CHURC08A[a]	DSOR422S1-CHURC08A	12.8	1	503	1	0.31	1	9.8	1					0.2	1	23.6	1	55.7	1
CHURC08A[a]	DSOR423S1-CHURC08A	12.1	1	726	1	0.63	1	10.4	1					0.31	1	29.8	1	61.3	1
CHURC08A[a]	DSOR424S1-CHURC08A	22.4	1	1710	1	1.5	1	18.6	1					0.41	1	41.3	1	95.6	1
CHURC08A[a]	DSOR425S1-CHURC08A	13.4	1	596	1	0.65	1	11.8	1					0.24	1	29.4	1	62.2	1
CHURC08A[a]	DSOR426S1-CHURC08A	10	1	725	1	0.36	1	11.6	1					0.31	1	27.9	1	53.9	1
CHURC08A[a]	DSOR439S1-CHURC08A	19.9	1	510	1	2.9	1	13.9	1					0.28	1	33.8	1	41.9	1
CHURC08A[a]	DSOR440S1-CHURC08A	24.6	1	735	1	3.1	1	43.4	1					0.47	1	39.6	1	68	1
CHURC08A[a]	DSOR441S1-CHURC08A	14.7	1	960	1	0.98	1	12.7	1					0.3	1	28.5	1	70	1
CHURC08A[a]	DSOR442S1-CHURC08A	17.6	1	716	1	0.91	1	11.5	1					0.21	1	21.5	1	108	1
CHURC08A[a]	DSOR443S1-CHURC08A	18.3	1	515	1	0.4	1	13.1	1					0.17	1	30.2	1	56.3	1
CHURC08A[a]	DSOR445S1-CHURC08A	8.6	1	463	1	0.51	1	20.4	1					0.42	1	27.9	1	54.4	1
CHURC08A[a]	DSOR447S1-CHURC08A	16.9	1	708	1	1.2	1	33.3	1					0.41	1	44.4	1	126	1
CHURC08A[a]	DSOR449S1-CHURC08A	16.3	1	1230	1	0.48	1	9.8	1					0.38	1	27.6	1	57.9	1

Notes provided at end of attachment.

Table C4-2. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
CHURC08A[a]	DSOR450S1-CHURC08A	38200	1			80.6	1	207	1	2	1	0.14	1	41	1	19.6	1	40.2	1	39800	1
CHURC08A[a]	DSOR455S1-CHURC08A	16650	1			21.35	1	109	1	0.955	1	0.08	1	14.55	1	7.25	1	19.75	1	19350	1
CHURC08A[a]	DSOR458S1-CHURC08A	25100	1			98.4	1	199	1	1.65	1	0.215	1	21.3	1	21.7	1	39.7	1	33250	1
CHURC08A[a]	RZAH021S1-CHURC08A	20600	1			39.75	1	111	1	0.86	1	0.08	1	21.05	1	14.9	1	32.4	1	25850	1
CHURC08A[a]	RZAH027S1-CHURC08A	16600	1			2.7	1	102	1	1.2	1	0.04	1	11.2	1	4.9	1	9.5	1	16500	1
ECOLO94A[b]	92268511	13350	1			3.12	1			0.58	1	0.345	1	11.05	1			7.735	1	13750	1
ECOLO94A[b]	92268514	30100	1			2.1	1			0.95	1	1	1	10.5	1			30.2	1	22700	1
ECOLO94A[b]	92268519	14300	1			3.1	1			0.55	1	0.7	1	11.8	1			15.9	1	20500	1
ECOLO94A[b]	92268522	26600	1			5.74	1			0.84	1	0.61	1	11.3	1			13.9	1	16500	1
Teck_2014_UplandSoil[g]	CBN-001-2mm	10850	1	0.21	1	6.825	1	122	1	0.4	1	0.205	1	14.9	1	6.16	1	12.85	1	16700	1
Teck_2014_UplandSoil[g]	CBN-002-2mm	13200	1	0.27	1	6.62	1	158	1	0.47	1	0.23	1	15.5	1	6.52	1	13.8	1	16200	1
Teck_2014_UplandSoil[g]	CBN-003-2mm	11633.3	1	0.28667	1	7.82	1	144	1	0.47	1	0.23333	1	14.4667	1	6.45	1	14.8	1	15800	1
Teck_2014_UplandSoil[g]	CBN-004-2mm	10800	1	0.26	1	8.26	1	138	1	0.39	1	0.3	1	18.8	1	7.16	1	16	1	17100	1
Teck_2014_UplandSoil[g]	CBS-001-2mm	10600	1	0.19	1	5.28	1	115	1	0.37	1	0.18	1	15	1	5.78	1	12.7	1	14500	1
Teck_2014_UplandSoil[g]	CBS-002-2mm	9110	1	0.17	1	5.58	1	95.1	1	0.34	1	0.18	1	11.9	1	4.88	1	11.1	1	13500	1

Notes provided at end of attachment.

Table C4-2. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
CHURC08A[a]	DSOR450S1-CHURC08A	11.3	1	784	1	0.63	1	34.2	1					0.68	1	59.1	1	61.2	1
CHURC08A[a]	DSOR455S1-CHURC08A	7.7	1	294.5	1	0.425	1	13.9	1					0.345	1	25.25	1	32.75	1
CHURC08A[a]	DSOR458S1-CHURC08A	15.2	1	777.5	1	8.9	1	35	1					0.43	1	40.8	1	53.05	1
CHURC08A[a]	RZAH021S1-CHURC08A	14.4	1	618.5	1	0.54	1	17.95	1					0.27	1	46.45	1	38.1	1
CHURC08A[a]	RZAH027S1-CHURC08A	9.92	1	456	1	0.25	1	8.2	1					0.24	1	25.5	1	41.6	1
ECOLO94A[b]	92268511	9.8	1	950	1			11.45	1									62.4	1
ECOLO94A[b]	92268514	10	1	847	1			9.8	1									70.7	1
ECOLO94A[b]	92268519	15	1	434	1			18.1	1									56.3	1
ECOLO94A[b]	92268522	17	1	858	1			11.6	1									78.4	1
Teck_2014_UplandSoil[g]	CBN-001-2mm	9.49	1	349	1	0.46	1	12.8	1	0.085	1	0.035	1	0.11	1	25.2	1	48.9	1
Teck_2014_UplandSoil[g]	CBN-002-2mm	10.3	1	380	1	0.49	1	13	1	0.09	1	0.04	1	0.12	1	25.7	1	50.7	1
Teck_2014_UplandSoil[g]	CBN-003-2mm	10.8333	1	378.66667	1	0.55333333	1	12.7333	1	0.08333	1	0.04667	1	0.12	1	24.1	1	52.7667	1
Teck_2014_UplandSoil[g]	CBN-004-2mm	12.1	1	387	1	0.58	1	15.6	1	0.08	1	0.05	1	0.12	1	27	1	59	1
Teck_2014_UplandSoil[g]	CBS-001-2mm	8.16	1	306	1	0.39	1	12.6	1	0.08	1	0.03	1	0.1	1	22.9	1	45	1
Teck_2014_UplandSoil[g]	CBS-002-2mm	7.91	1	307	1	0.37	1	10.3	1	0.19	0	0.02	1	0.09	1	18.4	1	45.4	1

Notes provided at end of attachment.

Table C4-3. ProUCL input of mercury concentrations for screened background samples

Study_ID	Sample Identifier	Mercury (mg/kg)	Qual. (ND=0)
ECOLO94A[b]	92268511	0.01	1
ECOLO94A[b]	92268514	0.02	1
ECOLO94A[b]	92268519	0.02	1
ECOLO94A[b]	92268522	0.02	1
geochem-fu53[c]	24239	0.14	1
geochem-fu53[c]	24253	0.07	1
geochem-fu53[c]	24273	0.03	1
geochem-fu53[c]	24382	0.12	1
geochem-fu53[c]	24499	0.04	1
geochem-fu53[c]	24693	0.04	1
geochem-fu53[c]	24749	0.03	1
geochem-fu53[c]	24762	0.12	1
geochem-fu53[c]	24778	0.04	1
geochem-fu53[c]	24812	0.06	1
geochem-fu53[c]	24830	0.04	1
geochem-fu53[c]	24879	0.05	1
geochem-fu53[c]	25111	0.1	1
geochem-fu53[c]	25275	0.1	1
geochem-fu53[c]	25424	0.06	1
geochem-fu53[c]	25519	0.03	1
geochem-fu53[c]	24287-R1	0.035	1
geochem-fu53[c]	DSOK234S1	0.03	1
geochem-fu53[c]	DSOM230S1	0.03	1
geochem-fu53[c]	DSOM232S1	0.02	0
geochem-fu53[c]	DSOP089S1-R1	0.02	0
geochem-fu53[c]	DSOR183S1	0.06	1
geochem-fu53[c]	DSOS095S1	0.02	0
geochem-fu53[c]	ONAA013S1	0.02	0
geochem-fu53[c]	ONAA034S1	0.02	0
geochem-fu53[c]	ONAB016S1	0.02	0
geochem-fu53[c]	ONAC025S1	0.02	0
geochem-fu53[c]	ONAC037S1	0.02	1
geochem-fu53[c]	ONAD022S1	0.02	0
geochem-fu53[c]	ONAE010S1	0.04	1
geochem-fu53[c]	ONAF038S1	0.02	0
geochem-fu53[c]	ONAH007S1	0.02	0
geochem-fu53[c]	ONBA037S1	0.02	0
geochem-fu53[c]	ONBB022S1-R1	0.035	1
geochem-fu53[c]	ONBC001S1	0.03	1
geochem-fu53[c]	ONBC014S1	0.02	0
geochem-fu53[c]	ONBD011S1	0.02	0
geochem-fu53[c]	ONBD025S1	0.03	1
geochem-fu53[c]	ONBD033S1	0.02	0
geochem-fu53[c]	ONBE028S1	0.03	1
geochem-fu53[c]	ONBG025S1	0.03	1
geochem-fu53[c]	ONCA015S1	0.04	1
geochem-fu53[c]	ONCB014S1	0.02	0
geochem-fu53[c]	ONCB031S1	0.02	0
geochem-fu53[c]	ONCC016S1	0.02	0

Notes provided at end of attachment.

Table C4-3. (Continued)

Study_ID	Sample Identifier	Mercury (mg/kg)	Qual. (ND=0)
geochem-fu53[c]	ONCD018S1	0.02	1
geochem-fu53[c]	ONCF034S1	0.02	0
geochem-fu53[c]	ONCG008S1	0.02	1
geochem-fu53[c]	ONCH030S1	0.04	1
geochem-fu53[c]	ONCH034S1	2.81	1
geochem-fu53[c]	ONDA014S1	0.02	0
geochem-fu53[c]	ONDB011S1	0.02	0
geochem-fu53[c]	ONDE011S1	0.02	0
geochem-fu53[c]	ONDF032S1	0.02	0
geochem-fu53[c]	ONDG016S1	0.03	1
geochem-fu53[c]	RZAG009S1	0.02	0
geochem-fu53[c]	RZBG020S1	0.05	1
geochem-fu53[c]	SKAA017S1	0.03	1
geochem-fu53[c]	SKAA037S1	0.03	1
geochem-fu53[c]	SKAB017S1	0.02	0
geochem-fu53[c]	SKAC013S1	0.02	1
geochem-fu53[c]	SKBB009S1	0.04	1
HARTC13C[d]	BG-11-SS	0.03	1
HARTC13C[d]	BG-14-SS	0.02	1
HARTC13C[d]	BG-15-SS	0.06	1
HARTC13C[d]	BG-2-SS	0.05	1
HARTC13C[d]	BG-3-SS	0.15	1
HARTC13C[d]	BG-5-SS	0.04	1
HARTC13C[d]	BG-6-SS	0.11	1
HARTC13C[d]	BG-7-SS	0.03	1
SMITH13A[f]	C-353907	0.05	1
SMITH13A[f]	C-353917	0.01	1
SMITH13A[f]	C-353923	0.02	1
SMITH13A[f]	C-353956	0.02	1
SMITH13A[f]	C-354185	0.03	1
SMITH13A[f]	C-354224	0.01	1
Teck_2014_UplandSoil[g]	ADA-034-2mm	0.02	1
Teck_2014_UplandSoil[g]	ADA-039-2mm	0.02	1
Teck_2014_UplandSoil[g]	ADA-049-2mm	0.04	1
Teck_2014_UplandSoil[g]	ADA-104-2mm	0.07	1
Teck_2014_UplandSoil[g]	ADA-106-2mm	0.07	1
Teck_2014_UplandSoil[g]	ADA-169-2mm	0.053333	1
Teck_2014_UplandSoil[g]	ADA-172-2mm	0.09	1
Teck_2014_UplandSoil[g]	ADA-173-2mm	0.073333	1
Teck_2014_UplandSoil[g]	ADA-174-2mm	0.11	1
Teck_2014_UplandSoil[g]	ADA-175-2mm	0.05	1
Teck_2014_UplandSoil[g]	ADA-176-2mm	0.05	1
Teck_2014_UplandSoil[g]	ADA-177-2mm	0.07	1
Teck_2014_UplandSoil[g]	ADA-178-2mm	0.05	1
Teck_2014_UplandSoil[g]	ADA-179-2mm	0.07	1
Teck_2014_UplandSoil[g]	ADA-180-2mm	0.08	1
Teck_2014_UplandSoil[g]	ADA-181-2mm	0.1	1
Teck_2014_UplandSoil[g]	ADA-182-2mm	0.06	1
Teck_2014_UplandSoil[g]	CBN-001-2mm	0.0085	1

Table C4-3. (Continued)

Study_ID	Sample Identifier	Mercury (mg/kg)	Qual. (ND=0)
Teck_2014_UplandSoil[g]	CBN-002-2mm	0.009	1
Teck_2014_UplandSoil[g]	CBN-003-2mm	0.009	1
Teck_2014_UplandSoil[g]	CBN-004-2mm	0.01	1
Teck_2014_UplandSoil[g]	CBS-001-2mm	0.008	1
Teck_2014_UplandSoil[g]	CBS-002-2mm	0.007	1
USEPA2001Mines/Mills[h]	MJ0FL1	0.06	0

Notes: [a] Church et al. (2008)
[b] Ecology (1994)
[c] USGS (2008b)
[d] Ecology (2013b)
[e] Smith (2006)
[f] Smith et al. (2013)
[g] TAI (2015b)
[h] USEPA (2002c)

ATTACHMENT C2 COMPREHENSIVE SEDIMENT DATA SET USED IN BACKGROUND ANALYSIS AND PROUCL INPUT AND OUTPUT FILES FOR SEDIMENT BTVS

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Aluminum	6170	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Antimony	18.8	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Arsenic	7.5	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Barium	255	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Beryllium	0.23	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Cadmium	1.6	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Calcium	29100	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Chromium	18	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Cobalt	7.4	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Copper	238	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Iron	25000	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Lead	230	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Magnesium	12300	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Manganese	477	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Mercury	0.06	FALSE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Nickel	8.4	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Potassium	1170	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Selenium	0.85	FALSE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Silver	1.9	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Sodium	463	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Thallium	1.3	FALSE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Vanadium	20.8	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL01SD-SSD	01264431	2001-06-29	CLP SOW	Sediment	Zinc	1520	TRUE	mg/kg			-181.3899994	443401	5419075	OU 1 North	-3.0614	0.2352	-1.38	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Aluminum	13400	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Antimony	40.1	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Arsenic	15	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Barium	1270	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Beryllium	0.54	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Cadmium	0.81	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Calcium	47600	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Chromium	85	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Cobalt	34.6	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Copper	1540	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Iron	134000	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Lead	246	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Magnesium	6900	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Manganese	2540	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Mercury	0.06	FALSE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Nickel	13.1	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Potassium	2800	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Selenium	0.91	FALSE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Silver	7.8	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Sodium	1430	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Thallium	1.4	FALSE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Vanadium	31.7	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL02SD-SSD	01264432	2001-06-29	CLP SOW	Sediment	Zinc	10500	TRUE	mg/kg			-161.5200043	443393	5419094	OU 1 North	-2.8073	4.5073	-0.0207	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Aluminum	15700	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Antimony	49.1	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Arsenic	19.3	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Barium	1610	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Beryllium	0.62	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Cadmium	0.74	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Calcium	56000	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Chromium	103	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Cobalt	41.1	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Copper	2070	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Iron	167000	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Lead	292	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Magnesium	5960	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Manganese	3140	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Mercury	0.07	FALSE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Nickel	14.7	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Potassium	3340	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Selenium	0.91	FALSE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Silver	7.8	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Sodium	1760	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Thallium	1.4	FALSE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Vanadium	33.4	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL03SD-SSD	01264433	2001-06-29	CLP SOW	Sediment	Zinc	13000	TRUE	mg/kg			-144.1499939	443407	5419113	OU 1 North	-2.8863	4.9659	0.0497	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Aluminum	17800	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Antimony	44.9	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Arsenic	23.9	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Barium	1910	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Beryllium	0.71	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Cadmium	1.5	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Calcium	63900	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Chromium	121	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Cobalt	45.9	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Copper	2530	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Iron	193000	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Lead	388	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Magnesium	5800	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Manganese	3630	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Mercury	0.06	FALSE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Nickel	15.8	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Potassium	3870	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Selenium	0.89	FALSE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Silver	8.2	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Sodium	1960	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Thallium	1.3	FALSE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Vanadium	36.5	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL04SD-SSD	01264434	2001-06-29	CLP SOW	Sediment	Zinc	15100	TRUE	mg/kg			-136.3600006	443417	5419122	OU 1 North	-3.1882	4.9351	0.1725	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Aluminum	19200	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Antimony	59.4	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Arsenic	41.4	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Barium	2150	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Beryllium	0.79	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Cadmium	1.7	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Calcium	70200	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Chromium	139	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Cobalt	54.2	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Copper	2960	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Iron	212000	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Lead	507	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Magnesium	5830	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Manganese	4130	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Mercury	0.06	FALSE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Nickel	17.6	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Potassium	4260	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Selenium	0.86	FALSE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Silver	10.3	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Sodium	2400	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Thallium	1.3	FALSE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Vanadium	39.8	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL05SD-SSD	01264435	2001-06-29	CLP SOW	Sediment	Zinc	16900	TRUE	mg/kg			-127.2799988	443426	5419133	OU 1 North	-3.2246	5.0304	0.0197	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Aluminum	7170	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Antimony	10.9	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Arsenic	10.9	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Barium	582	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Beryllium	0.29	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Cadmium	3.3	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Calcium	33300	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Chromium	25.9	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Cobalt	9.8	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Copper	349	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Iron	44900	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Lead	470	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Magnesium	13900	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Manganese	864	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Mercury	0.08	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Nickel	10.5	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Potassium	1570	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Selenium	0.99	FALSE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Silver	2.8	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Sodium	807	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Thallium	1.5	FALSE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Vanadium	28.6	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL06SD-SSD	01264436	2001-06-29	CLP SOW	Sediment	Zinc	3920	TRUE	mg/kg			-224.1799927	443505	5419059	OU 1 North	-3.9587	0.8433	-1.1709	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Aluminum	7250	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Antimony	19.2	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Arsenic	12.3	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Barium	762	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Beryllium	0.3	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Cadmium	4.9	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Calcium	40500	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Chromium	22.4	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Cobalt	8.8	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Copper	257	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Iron	35900	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Lead	548	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Magnesium	18700	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Manganese	617	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Mercury	0.11	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Nickel	14.7	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Potassium	1520	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Selenium	0.91	FALSE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Silver	2.3	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Sodium	528	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Thallium	1.4	FALSE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Vanadium	28.4	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL07SD-SSD	01264437	2001-06-29	CLP SOW	Sediment	Zinc	2800	TRUE	mg/kg			-225.4299927	443508	5419059	OU 1 North	-4.2453	-0.3357	-1.8815	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Aluminum	7180	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Antimony	8.6	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Arsenic	11.1	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Barium	804	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Beryllium	0.28	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Cadmium	3	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Calcium	38400	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Chromium	24.8	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Cobalt	7.9	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Copper	347	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Iron	54600	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Lead	597	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Magnesium	15500	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Manganese	1190	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Mercury	0.08	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Nickel	9.2	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Potassium	1450	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Selenium	1.1	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Silver	2.8	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Sodium	695	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Thallium	1.4	FALSE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Vanadium	28.1	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL08SD-SSD	01264438	2001-06-29	CLP SOW	Sediment	Zinc	5430	TRUE	mg/kg			-231.25	443521	5419059	OU 1 North	-4.4652	1.1576	-1.5319	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Aluminum	7530	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Antimony	9.4	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Arsenic	15.9	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Barium	411	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Beryllium	0.24	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Cadmium	3.2	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Calcium	21300	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Chromium	20	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Cobalt	11.4	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Copper	357	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Iron	54200	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Lead	845	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Magnesium	6680	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Manganese	1170	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Mercury	0.29	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Nickel	12.8	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Potassium	1830	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Selenium	0.83	FALSE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Silver	3.1	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Sodium	870	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Thallium	1.3	FALSE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Vanadium	24.5	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 EPA Stevens County Mines and Mills PA/SI	NSSL09SD-SSD	01264439	2001-06-29	CLP SOW	Sediment	Zinc	5280	TRUE	mg/kg			-233.2299957	443589	5419099	OU 1 North	-4.4348	0.8116	-0.2644	1
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Aluminum	11300	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Antimony	1.3	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Arsenic	6.7	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Barium	136	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Beryllium	0.66	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Calcium	7150	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Chromium	16.4	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Cobalt	8.4	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Copper	17.3	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Iron	22900	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Lead	11.4	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Magnesium	6540	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Manganese	475	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Nickel	15.6	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Potassium	2470	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Selenium	0.87	FALSE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Silver	1.2	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Sodium	259	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Thallium	1	FALSE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Vanadium	36.1	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt Crescent Bay boat ramp	CS001	2001-05-14	Unk	Sediment	Zinc	77.9	TRUE	mg/kg	30	65	-253.9900055	351689.8597	5312384.463	OU 2 Lower Laucustrine CSM Unit	3.0173	0.2738	-0.287	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Aluminum	6270	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Antimony	0.74	FALSE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Arsenic	4.5	FALSE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Barium	79.6	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Beryllium	0.45	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Cadmium	0.62	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Calcium	3090	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Chromium	7.7	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Cobalt	5.2	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Copper	9.8	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Iron	16700	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Lead	22.3	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Magnesium	3460	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Manganese	434	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Nickel	8	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Potassium	1250	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Selenium	0.84	FALSE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Silver	0.8	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Sodium	184	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Thallium	0.97	FALSE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Vanadium	30	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt North Dam Boat Ramp	CS002	2001-05-14	Unk	Sediment	Zinc	149	TRUE	mg/kg	30	70	746.8599854	353331.9529	5312316.533	OU 2 Lower Laucustrine CSM Unit	1.0277	-0.704	0.8232	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Aluminum	8730	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Antimony	0.81	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Arsenic	4	FALSE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Barium	113	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Beryllium	0.71	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Calcium	5760	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Chromium	8.8	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Cobalt	7.2	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Copper	11.1	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Iron	23000	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Lead	6.1	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Magnesium	4340	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Manganese	387	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Nickel	8.5	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Potassium	1840	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Selenium	0.91	FALSE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Silver	1	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Thallium	1	FALSE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Vanadium	51.3	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt Plum Point	CS003	2001-05-15	Unk	Sediment	Zinc	54.3	TRUE	mg/kg	0	100	-715.0999756	360664.9882	5312524.043	OU 2 Lower Laucustrine CSM Unit	3.1967	0.7193	0.067	3
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Aluminum	13700	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Antimony	1.5	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Arsenic	7.7	FALSE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Barium	230	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Beryllium	0.69	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Cadmium	3.6	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Calcium	5970	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Chromium	30.1	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Cobalt	8.5	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Copper	48.5	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Iron	23400	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Lead	219	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Magnesium	6990	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Manganese	719	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Mercury	0.66	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Nickel	24.6	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Potassium	2570	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Selenium	1.3	FALSE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Silver	1.7	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Sodium	345	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Thallium	1.5	FALSE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Vanadium	36.9	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt near Inchelium	CS004	2001-05-17	Unk	Sediment	Zinc	523	TRUE	mg/kg	0	100	494.1600037	413045.9429	5350369.914	OU 2 Upper Laucustrine CSM Unit	-1.315	-2.0292	1.4108	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Aluminum	12100	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Antimony	1.6	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Arsenic	8.1	FALSE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Barium	269	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Beryllium	0.63	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Cadmium	4	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Calcium	7670	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Chromium	29.8	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Cobalt	8.1	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Copper	41.6	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Iron	22300	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Lead	238	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Magnesium	7720	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Manganese	533	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Mercury	0.49	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Nickel	24.1	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Potassium	2230	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Selenium	1.2	FALSE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Silver	1.6	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Sodium	359	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Thallium	1.4	FALSE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Vanadium	36.2	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at point south of Hall Creek	CS005	2001-05-17	Unk	Sediment	Zinc	600	TRUE	mg/kg	0	100	84.4599991	412776.4481	5351327.749	OU 2 Upper Laucustrine CSM Unit	-1.5845	-2.1273	0.8858	2
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Aluminum	4430	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Antimony	0.76	FALSE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Arsenic	2.2	FALSE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Barium	42.2	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Beryllium	0.21	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Cadmium	0.12	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Calcium	4420	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Chromium	8.8	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Cobalt	3.3	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Copper	10.4	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Iron	8630	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Lead	6.2	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Magnesium	3140	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Manganese	181	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Nickel	9.6	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Potassium	763	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Selenium	0.87	FALSE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Silver	0.48	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Sodium	197	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Thallium	0.99	FALSE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Vanadium	17.3	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt at Mission Point	CS006	2001-05-17	Unk	Sediment	Zinc	36.8	TRUE	mg/kg	90	5	991.6099854	412092.6372	5357030.576	OU 2 Upper Laucustrine CSM Unit	2.1464	-0.5537	-0.0848	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Aluminum	4700	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Antimony	0.85	FALSE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Arsenic	4	FALSE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Barium	57.4	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Beryllium	0.24	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Cadmium	0.33	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Chromium	15.7	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Cobalt	3.6	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Copper	11.8	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Iron	14400	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Lead	21.5	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Magnesium	2760	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Manganese	267	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Nickel	10.5	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Potassium	672	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Selenium	0.96	FALSE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Silver	0.71	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Sodium	200	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Vanadium	27.7	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt north of Daisy Station	CS007	2001-05-17	Unk	Sediment	Zinc	77.9	TRUE	mg/kg	65	35	-1518.650024	412697.1927	5359186.561	OU 2 Upper Laucustrine CSM Unit	1.3387	-0.5861	0.9178	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Aluminum	8240	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Antimony	0.97	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Arsenic	5.1	FALSE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Barium	105	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Beryllium	0.42	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Cadmium	0.73	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Calcium	13200	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Chromium	23.3	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Cobalt	6.9	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Copper	22.5	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Iron	16600	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Lead	24.4	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Magnesium	5990	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Manganese	376	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Mercury	0.08	FALSE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Nickel	21	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Potassium	1770	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Selenium	1.1	FALSE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Silver	0.94	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Sodium	289	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Thallium	1.3	FALSE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Vanadium	32	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Cheweka Creek	CS008	2001-05-17	Unk	Sediment	Zinc	99	TRUE	mg/kg	60	40	-748.6199951	412432.0127	5363211.798	OU 2 Upper Laucustrine CSM Unit	1.3143	-0.9397	-0.2092	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Aluminum	7440	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Antimony	0.65	FALSE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Arsenic	6.6	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Barium	61.1	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Beryllium	0.29	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Cadmium	0.25	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Calcium	3350	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Chromium	20.4	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Cobalt	6.7	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Copper	21.9	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Iron	16500	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Lead	16.7	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Magnesium	4860	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Manganese	250	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Nickel	21	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Potassium	1070	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Selenium	0.74	FALSE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Silver	0.85	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Sodium	231	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Thallium	0.85	FALSE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Vanadium	27.9	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Chalk Grade Point	CS009	2001-05-17	Unk	Sediment	Zinc	90.9	TRUE	mg/kg	90	10	-345.7600098	411744.832	5364811.807	OU 2 Upper Laucustrine CSM Unit	2.2577	-0.5672	0.5323	3
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Aluminum	21200	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Antimony	0.63	FALSE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Arsenic	5	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Barium	227	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Beryllium	0.84	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Cadmium	4.4	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Calcium	4920	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Chromium	14	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Cobalt	5.8	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Copper	33.9	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Iron	14300	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Lead	86.6	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Magnesium	3220	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Manganese	347	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Mercury	0.14	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Nickel	14.4	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Potassium	1400	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Selenium	0.72	FALSE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Silver	0.76	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Sodium	287	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Thallium	0.82	FALSE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Vanadium	26.7	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt south of Barnaby Island	CS010	2001-05-17	Unk	Sediment	Zinc	230	TRUE	mg/kg	0	100	86.9100037	410255.693	5366135.23	OU 2 Upper Laucustrine CSM Unit	-1.0564	-1.9943	1.3258	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Aluminum	14300	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Antimony	3.6	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Arsenic	13.7	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Barium	512	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Beryllium	0.77	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Cadmium	8.1	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Calcium	14100	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Chromium	35.7	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Cobalt	9.4	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Copper	91.7	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Iron	28300	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Lead	464	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Magnesium	11200	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Manganese	808	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Mercury	1.7	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Nickel	27	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Potassium	2520	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Selenium	1.5	FALSE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Silver	2.7	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Sodium	406	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Thallium	1.7	FALSE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Vanadium	39.9	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, Two	CS011	2001-05-17	Unk	Sediment	Zinc	1060	TRUE	mg/kg	0	100	-605.9899902	410946.6162	5367666.07	OU 2 Upper Laucustrine CSM Unit	-3.0231	-2.4473	0.3051	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Aluminum	14300	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Antimony	3.3	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Arsenic	14.9	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Barium	596	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Beryllium	0.78	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Cadmium	9.4	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Calcium	15900	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Chromium	35.9	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Cobalt	9.4	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Copper	86.8	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Iron	29600	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Lead	535	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Magnesium	12400	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Manganese	698	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Mercury	0.97	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Nickel	27.4	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Potassium	2500	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Selenium	1.4	FALSE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Silver	2.7	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Sodium	429	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Thallium	1.7	FALSE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Vanadium	40.6	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Quillisascut Cree, One	CS012	2001-05-18	Unk	Sediment	Zinc	1210	TRUE	mg/kg	0	100	-139.0500031	411083.1023	5368286.252	OU 2 Upper Laucustrine CSM Unit	-3.0978	-2.3926	0.0248	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Aluminum	12800	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Antimony	3.2	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Arsenic	19	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Barium	755	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Beryllium	0.64	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Cadmium	11.1	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Calcium	27000	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Chromium	25.9	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Cobalt	7.4	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Copper	73.4	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Iron	26800	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Lead	841	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Magnesium	18100	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Manganese	515	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Mercury	1.6	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Nickel	21.9	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Potassium	1970	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Selenium	0.83	FALSE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Silver	1.9	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Sodium	301	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Thallium	0.95	FALSE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Vanadium	38.5	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on flats between French Point Rocks	CS013	2001-05-18	Unk	Sediment	Zinc	1460	TRUE	mg/kg	0.99009901	94.05940594	284.8900146	411757.2542	5371320.933	OU 2 Upper Laucustrine CSM Unit	-4.1364	-3.2141	-1.2374	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Aluminum	15400	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Antimony	4.1	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Arsenic	12.3	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Beryllium	0.83	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Cadmium	7.5	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Calcium	12100	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Chromium	38	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Cobalt	10	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Copper	111	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Iron	29400	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Lead	440	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Magnesium	10300	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Manganese	610	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Mercury	1	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Nickel	28.5	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Potassium	2680	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Selenium	1.7	FALSE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Silver	2.9	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Sodium	490	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Thallium	1.9	FALSE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Vanadium	42.4	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt on mid-channel bar east of French P	CS014	2001-05-18	Unk	Sediment	Zinc	1000	TRUE	mg/kg	0	100	-999.4099731	413563.5771	5372223.086	OU 2 Upper Laucustrine CSM Unit	-2.6893	-2.2841	0.6324	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Aluminum	9120	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Antimony	1.5	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Arsenic	6.2	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Barium	229	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Beryllium	0.46	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Cadmium	3.4	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Calcium	7040	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Chromium	21.1	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Cobalt	5.9	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Copper	49.2	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Iron	16800	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Lead	190	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Magnesium	6130	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Manganese	294	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Mercury	0.54	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Nickel	16.5	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Potassium	1630	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Selenium	0.76	FALSE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Silver	1.4	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Sodium	249	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Thallium	0.87	FALSE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Vanadium	25.8	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt north of French Point	CS015	2001-05-18	Unk	Sediment	Zinc	470	TRUE	mg/kg	20	80	1042.670044	412395.9045	5373049.139	OU 2 Upper Laucustrine CSM Unit	-2.1565	-2.4002	0.5888	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Aluminum	13600	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Antimony	1.5	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Arsenic	8.5	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Barium	261	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Beryllium	0.71	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Cadmium	3.8	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Calcium	7150	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Chromium	28.6	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Cobalt	8.7	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Copper	73	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Iron	23800	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Lead	162	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Magnesium	7240	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Manganese	572	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Mercury	0.31	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Nickel	24	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Potassium	2290	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Selenium	0.84	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Silver	1.7	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Sodium	248	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Thallium	0.8	FALSE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Vanadium	37.2	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bradbury Beach	CS016	2001-05-18	Unk	Sediment	Zinc	462	TRUE	mg/kg	5	95	-122.6800003	415336.1055	5374667.914	OU 2 Upper Laucustrine CSM Unit	-1.2624	-1.8753	0.9652	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Aluminum	15600	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Antimony	0.72	FALSE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Arsenic	2.8	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Barium	175	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Beryllium	0.55	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Cadmium	0.43	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Calcium	5560	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Chromium	9.4	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Cobalt	4	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Copper	15.6	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Iron	11500	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Lead	26.8	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Magnesium	2970	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Manganese	315	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Nickel	9.2	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Potassium	1060	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Selenium	0.82	FALSE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Silver	0.32	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Sodium	381	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Thallium	0.94	FALSE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Vanadium	19.2	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR-	2001-05-18	Unk	Sediment	Zinc	84.2	TRUE	mg/kg	20	70	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	0.5435	-0.486	0.3545	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Aluminum	9540	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Antimony	2.4	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Arsenic	13.1	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Barium	1030	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Beryllium	0.53	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Cadmium	8.6	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Calcium	34900	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Chromium	25.2	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Cobalt	6.5	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Copper	67.7	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Iron	25900	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Lead	439	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Magnesium	21400	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Manganese	420	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Mercury	0.93	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Nickel	22.7	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Potassium	1590	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Selenium	0.86	FALSE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Silver	1.8	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Sodium	276	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Thallium	0.98	FALSE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Vanadium	33.9	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats fronting Haag Cove	CS017 CR018-SD	2001-05-18	Unk	Sediment	Zinc	1180	TRUE	mg/kg	20	80	520.0800171	415464	5378531	OU 2 Upper Laucustrine CSM Unit	-4.026	-2.7883	-1.9551	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Aluminum	8180	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Antimony	1.7	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Arsenic	7.8	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Barium	422	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Beryllium	0.43	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Cadmium	4.9	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Calcium	12400	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Chromium	18.9	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Cobalt	5.4	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Copper	40.6	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Iron	17400	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Lead	232	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Magnesium	8970	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Manganese	337	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Mercury	0.43	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Nickel	16.6	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Potassium	1490	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Selenium	0.77	FALSE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Silver	0.78	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Sodium	242	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Thallium	0.89	FALSE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Vanadium	24.2	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Colville River	CS018	2001-05-19	Unk	Sediment	Zinc	581	TRUE	mg/kg	40	60	-867.8800049	417304.7322	5379891.437	OU 2 Upper Laucustrine CSM Unit	-2.869	-2.408	-0.6083	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Aluminum	11900	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Antimony	2.1	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Arsenic	4.5	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Barium	231	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Beryllium	0.62	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Cadmium	1.4	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Calcium	9340	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Chromium	20.4	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Cobalt	7.4	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Copper	41.8	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Iron	20400	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Lead	64.9	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Magnesium	7000	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Manganese	392	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Mercury	0.14	FALSE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Nickel	18.7	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Potassium	2020	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Selenium	1.9	FALSE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Silver	0.75	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Sodium	480	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Vanadium	26.7	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt	CS019	2001-05-19	Unk	Sediment	Zinc	250	TRUE	mg/kg	0.99009901	99.00990099	-482.5100098	417587.6805	5381027.925	OU 2 Upper Laucustrine CSM Unit	-0.349	-0.9808	0.3818	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Aluminum	6670	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Antimony	5.4	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Arsenic	6.8	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Barium	180	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Beryllium	0.39	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Cadmium	1.8	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Calcium	7630	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Chromium	17	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Cobalt	5.4	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Copper	66.7	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Iron	15500	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Lead	72.7	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Magnesium	5610	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Manganese	303	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Mercury	0.13	FALSE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Nickel	13.6	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Potassium	1270	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Selenium	1.9	FALSE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Silver	1.1	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Sodium	426	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Vanadium	20.2	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt south of Boise Cascade Log Boom	CS020	2001-05-19	Unk	Sediment	Zinc	455	TRUE	mg/kg	10	90	-811.8599854	417200.2676	5384542.269	OU 2 Transitional CSM Unit	-1.5489	-1.0506	0.0541	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Aluminum	12800	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Antimony	3.6	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Arsenic	9.5	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Barium	364	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Beryllium	0.69	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Cadmium	6.5	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Calcium	8230	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Chromium	33.1	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Cobalt	9.2	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Copper	88.2	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Iron	25200	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Lead	441	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Magnesium	8200	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Manganese	673	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Mercury	1.2	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Nickel	25.9	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Potassium	2440	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Selenium	1.5	FALSE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Silver	2	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Sodium	471	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Thallium	1.8	FALSE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Vanadium	35.8	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt Marcus Flats, northwest of Martin S	CS021	2001-05-21	Unk	Sediment	Zinc	901	TRUE	mg/kg	0.99009901	99.00990099	-1929.469971	419944.624	5387235.992	OU 2 Transitional CSM Unit	-2.7032	-2.2228	1.1109	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Aluminum	11600	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Antimony	3.4	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Arsenic	10.3	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Barium	240	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Beryllium	0.6	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Cadmium	5.9	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Calcium	7740	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Chromium	30.4	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Cobalt	7.9	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Copper	67.6	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Iron	22400	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Lead	282	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Magnesium	7930	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Manganese	392	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Mercury	0.9	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Nickel	23.2	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Potassium	2280	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Selenium	2	FALSE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Silver	1.5	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Sodium	623	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Vanadium	33.7	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, southwest of Pingsto	CS022	2001-05-21	Unk	Sediment	Zinc	617	TRUE	mg/kg	0	100	-1199.76001	420059.646	5387858.231	OU 2 Transitional CSM Unit	-2.137	-2.4478	0.9052	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Aluminum	10400	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Antimony	1	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Arsenic	4.2	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Barium	190	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Beryllium	0.63	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Cadmium	1.6	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Calcium	5470	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Chromium	25.7	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Cobalt	8.2	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Copper	53.9	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Iron	18000	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Lead	93.8	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Magnesium	6150	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Manganese	392	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Mercury	0.25	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Nickel	23	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Potassium	2390	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Selenium	0.68	FALSE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Silver	0.98	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Sodium	186	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Thallium	0.78	FALSE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Vanadium	32.1	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats	CS023	2001-05-21	Unk	Sediment	Zinc	280	TRUE	mg/kg	50	50	263.9700012	418369.7046	5389407.919	OU 2 Transitional CSM Unit	-0.4654	-1.7899	1.2808	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Aluminum	6810	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Antimony	1.6	FALSE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Arsenic	5.8	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Barium	147	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Beryllium	0.29	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Cadmium	0.1	FALSE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Calcium	162000	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Chromium	12.9	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Cobalt	4.7	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Copper	18.1	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Iron	11700	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Lead	6.7	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Magnesium	5090	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Manganese	327	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Mercury	0.08	FALSE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Nickel	14.3	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Potassium	1330	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Selenium	1.2	FALSE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Silver	0.32	FALSE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Sodium	337	FALSE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Thallium	1.3	FALSE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Vanadium	16.6	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Marcus Flats, north of Pingston Creek	CS024	2001-06-08	Unk	Sediment	Zinc	42.3	TRUE	mg/kg	44.55445545	54.45544554	-859.8200073	420079.3273	5389403.184	OU 2 Transitional CSM Unit	1.3994	0.3198	-3.8953	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Aluminum	9920	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Antimony	4.9	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Arsenic	10.6	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Barium	505	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Beryllium	0.54	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Cadmium	4.3	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Calcium	21200	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Chromium	25	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Cobalt	7.9	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Copper	120	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Iron	27500	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Lead	211	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Magnesium	13800	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Manganese	528	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Mercury	0.49	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Nickel	21.4	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Potassium	1960	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Selenium	1.8	FALSE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Silver	2	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Sodium	483	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Thallium	2.1	FALSE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Vanadium	30.5	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt on Marcus Flats west of Pingston Cr	CS025	2001-05-21	Unk	Sediment	Zinc	855	TRUE	mg/kg	25	75	-1520.449951	419585.5754	5389502.002	OU 2 Transitional CSM Unit	-2.7971	-1.5778	-0.8433	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Aluminum	8000	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Antimony	4.8	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Arsenic	9.5	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Barium	375	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Beryllium	0.44	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Cadmium	2.9	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Calcium	16600	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Chromium	21.9	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Cobalt	7.7	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Copper	118	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Iron	23000	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Lead	159	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Magnesium	11100	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Manganese	411	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Mercury	0.2	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Nickel	18	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Potassium	1560	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Selenium	1.2	FALSE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Silver	1.8	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Sodium	354	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Thallium	1.4	FALSE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Vanadium	25.6	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, south of Marcus Isla	CS026	2001-05-21	Unk	Sediment	Zinc	940	TRUE	mg/kg	35	65	-645.5599976	419866.7564	5390363.178	OU 2 Transitional CSM Unit	-2.5228	-1.2092	-0.7709	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Aluminum	9090	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Antimony	1.3	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Arsenic	3.4	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Barium	113	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Beryllium	0.58	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Cadmium	0.29	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Calcium	4800	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Chromium	21.1	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Cobalt	6	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Copper	25	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Iron	16000	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Lead	21.3	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Magnesium	5190	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Manganese	284	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Mercury	0.09	FALSE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Nickel	16.2	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Potassium	1380	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Selenium	1.3	FALSE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Silver	0.52	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Sodium	385	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Thallium	1.5	FALSE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Vanadium	29	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats, east of Kamloops	CS027	2001-05-21	Unk	Sediment	Zinc	104	TRUE	mg/kg	35	65	1402.430054	418971.8937	5391301.733	OU 2 Transitional CSM Unit	1.5144	-0.5329	0.8063	3
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Aluminum	12400	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Antimony	3.9	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Arsenic	9.7	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Barium	370	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Cadmium	2.8	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Calcium	16100	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Chromium	30.1	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Cobalt	9.6	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Copper	114	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Iron	29000	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Lead	149	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Magnesium	11900	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Manganese	589	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Mercury	0.17	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Nickel	24.8	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Potassium	2480	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Selenium	1.6	FALSE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Silver	1.7	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Sodium	397	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Thallium	1.9	FALSE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Vanadium	36.7	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt, Marcus Flats northeast	CS028	2001-05-21	Unk	Sediment	Zinc	787	TRUE	mg/kg	25	75	1120.979981	420140.9376	5392392.264	OU 2 Transitional CSM Unit	-1.502	-1.1214	-0.1831	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Aluminum	7150	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Antimony	1.9	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Arsenic	7	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Barium	342	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Beryllium	0.37	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Cadmium	3.2	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Calcium	11500	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Chromium	17.7	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Cobalt	5	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Copper	65.7	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Iron	15900	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Lead	208	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Magnesium	7940	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Manganese	256	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Mercury	0.53	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Nickel	14.1	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Potassium	1250	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Selenium	0.68	FALSE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Silver	1.5	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Sodium	200	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Thallium	0.78	FALSE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Vanadium	21.4	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt north of Summer Island	CS029	2001-05-21	Unk	Sediment	Zinc	600	TRUE	mg/kg	30	70	-242.3000031	424024.3033	5393954.331	OU 1 South	-3.1021	-2.3507	-0.5697	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Aluminum	11200	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Antimony	4.7	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Arsenic	11.1	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Barium	624	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Beryllium	0.62	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Cadmium	7.2	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Calcium	20500	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Chromium	30.6	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Cobalt	9	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Copper	205	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Iron	26800	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Lead	369	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Magnesium	14200	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Manganese	388	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Mercury	1.1	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Nickel	23.1	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Potassium	1820	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Selenium	1.1	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Silver	3.1	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Sodium	258	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Thallium	0.8	FALSE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Vanadium	33.1	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt on flats at Evans Campground	CS030	2001-05-21	Unk	Sediment	Zinc	1250	TRUE	mg/kg	30	70	330.7200012	424698.6356	5394222.324	OU 1 South	-3.7527	-2.4798	-0.5502	2
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Aluminum	6940	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Antimony	21.5	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Arsenic	11.5	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Barium	533	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Beryllium	0.38	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Cadmium	4.3	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Calcium	26300	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Chromium	29.9	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Cobalt	10.7	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Copper	387	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Iron	36300	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Lead	256	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Magnesium	11800	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Manganese	661	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Mercury	0.4	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Nickel	16	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Potassium	1440	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Selenium	1.6	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Silver	3.4	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Sodium	374	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Thallium	1.6	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Vanadium	23.6	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt east of Snag Cove	CS031	2001-05-21	Unk	Sediment	Zinc	2560	TRUE	mg/kg	70	30	-288.0700073	422851.9427	5398129.922	OU 1 South	-3.9757	-0.3674	-0.8074	1
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Aluminum	9410	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Antimony	4.7	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Arsenic	8.7	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Barium	295	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Beryllium	0.54	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Cadmium	3.5	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Calcium	15400	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Chromium	26.4	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Cobalt	8.6	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Copper	150	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Iron	24700	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Lead	165	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Magnesium	10200	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Manganese	481	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Mercury	0.19	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Nickel	21.1	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Potassium	1900	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Selenium	0.97	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Silver	2.1	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Sodium	266	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Thallium	0.84	FALSE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Vanadium	29.4	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of Bossburg	CS032	2001-05-21	Unk	Sediment	Zinc	1030	TRUE	mg/kg	30	70	656.4699707	422548.6645	5400296.393	OU 1 South	-2.2396	-1.3757	-0.1329	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Aluminum	9240	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Antimony	7	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Arsenic	13	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Barium	618	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Cadmium	6.9	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Calcium	26100	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Chromium	29.4	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Cobalt	9	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Copper	251	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Iron	28900	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Lead	392	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Magnesium	15300	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Manganese	435	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Mercury	0.73	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Nickel	20.9	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Potassium	1620	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Selenium	1.2	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Silver	3.2	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Sodium	269	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Thallium	0.92	FALSE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Vanadium	30.2	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats north of Bossburg	CS033	2001-05-21	Unk	Sediment	Zinc	1660	TRUE	mg/kg	40	60	-188.5800018	423063.2452	5401154.228	OU 1 South	-4.0353	-2.02	-0.9897	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Aluminum	8720	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Antimony	5.7	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Arsenic	10.7	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Barium	391	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Beryllium	0.49	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Cadmium	3.6	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Calcium	19600	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Chromium	25.8	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Cobalt	8.6	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Copper	156	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Iron	25500	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Lead	190	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Magnesium	12800	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Manganese	545	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Mercury	0.32	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Nickel	19.8	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Potassium	1760	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Selenium	0.69	FALSE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Silver	2.2	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Sodium	207	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Thallium	0.79	FALSE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Vanadium	28.6	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS034	2001-05-21	Unk	Sediment	Zinc	1100	TRUE	mg/kg	31.57894737	68.42105263	-146.4600067	426031.3632	5404202.255	OU 1 South	-2.731	-1.5337	-0.742	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Aluminum	8540	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Antimony	2.2	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Arsenic	7.9	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Barium	255	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Beryllium	0.45	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Cadmium	2.3	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Calcium	10800	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Chromium	23.4	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Cobalt	7.3	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Copper	76.8	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Iron	19800	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Lead	112	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Magnesium	8570	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Manganese	467	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Mercury	0.16	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Nickel	19.1	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Potassium	1610	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Selenium	0.68	FALSE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Silver	1.2	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Sodium	237	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Thallium	0.78	FALSE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Vanadium	28.3	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt on flats south of North Gorge	CS035	2001-05-22	Unk	Sediment	Zinc	592	TRUE	mg/kg	30	65	-146.4600067	425562.0256	5404806.144	OU 1 South	-1.5606	-1.3397	-0.125	2
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Aluminum	8790	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Antimony	10.8	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Arsenic	10.4	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Barium	438	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Beryllium	0.39	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Cadmium	2.8	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Calcium	22300	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Chromium	28.1	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Cobalt	10.6	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Copper	309	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Iron	42300	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Lead	209	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Magnesium	10300	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Manganese	946	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Mercury	0.16	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Nickel	15	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Potassium	1400	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Selenium	1.4	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Silver	2.1	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Sodium	384	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Thallium	0.81	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Vanadium	27.1	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt east of Flat Creek	CS036	2001-05-22	Unk	Sediment	Zinc	3090	TRUE	mg/kg	58.82352941	40.19607843	1171.099976	428158.3488	5407963.164	OU 1 South	-3.2203	0.3779	-0.4736	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Aluminum	18900	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Antimony	17.2	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Arsenic	26.9	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Barium	1070	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Cadmium	2.8	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Calcium	49600	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Chromium	59.1	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Cobalt	22.3	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Copper	1460	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Iron	176000	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Lead	1590	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Magnesium	7230	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Manganese	3390	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Mercury	0.07	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Nickel	10.3	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Potassium	3620	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Selenium	0.68	FALSE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Silver	4	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Sodium	1310	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Thallium	4	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Vanadium	39	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt At China Bar	CS037	2001-05-22	Unk	Sediment	Zinc	24900	TRUE	mg/kg	60	35	164.0099945	432045.0945	5408775.915	OU 1 South	-4.3381	3.3106	0.2272	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Aluminum	12400	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Antimony	10.4	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Arsenic	17.3	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Barium	603	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Beryllium	0.53	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Cadmium	2.1	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Calcium	28900	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Chromium	35.1	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Cobalt	15.1	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Copper	823	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Iron	109000	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Lead	784	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Magnesium	5020	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Manganese	2090	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Mercury	0.13	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Nickel	8.5	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Potassium	2300	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Selenium	4.2	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Silver	2.9	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Sodium	723	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Thallium	2.4	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Vanadium	29.5	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt near navigation light south of Crown Creek	CS038	2001-05-23	Unk	Sediment	Zinc	13900	TRUE	mg/kg	55	30	729	432004.0089	5409781.149	OU 1 South	-4.2469	2.5146	0.3949	1
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Aluminum	4950	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Antimony	3.4	FALSE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Arsenic	9.6	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Barium	768	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Beryllium	0.28	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Cadmium	5.3	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Calcium	46900	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Chromium	12.5	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Cobalt	4.1	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Copper	102	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Iron	25000	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Lead	289	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Magnesium	25000	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Manganese	442	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Mercury	0.29	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Nickel	10.9	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Potassium	883	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Selenium	0.82	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Silver	0.63	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Sodium	228	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Thallium	1.1	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Vanadium	23	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Rattlesnake Creek	CS039	2001-05-23	Unk	Sediment	Zinc	1990	TRUE	mg/kg	65	35	-481.3099976	435554.8614	5412946.827	OU 1 South	-4.8543	-1.7345	-3.0384	2
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Aluminum	6520	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Antimony	19.2	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Arsenic	9.1	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Barium	452	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Beryllium	0.34	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Cadmium	1.9	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Calcium	24700	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Chromium	27.1	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Cobalt	12	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Copper	362	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Iron	37600	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Lead	172	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Magnesium	9750	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Manganese	743	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Mercury	0.08	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Nickel	11.1	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Potassium	1330	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Selenium	1.8	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Silver	2.1	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Sodium	377	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Thallium	1.2	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Vanadium	21.5	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Lake Roosevelt north of Onion Creek	CS040	2001-05-23	Unk	Sediment	Zinc	2770	TRUE	mg/kg	74	25	40.2200012	437949.4589	5413901.695	OU 1 North	-3.1535	1.0325	-0.767	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Aluminum	6550	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Antimony	17.2	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Arsenic	8.7	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Barium	495	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Beryllium	0.32	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Cadmium	2.1	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Calcium	28200	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Chromium	32.8	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Cobalt	13.7	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Copper	451	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Iron	48200	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Lead	175	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Magnesium	9960	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Manganese	908	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Mercury	0.07	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Nickel	10.2	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Potassium	1260	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Selenium	2.1	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Silver	2.2	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Sodium	475	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Thallium	0.78	FALSE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Vanadium	21.4	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island northw	CS041	2001-05-23	Unk	Sediment	Zinc	3760	TRUE	mg/kg	88.23529412	10.78431373	-1129.229981	437907.994	5414295.527	OU 1 North	-3.3005	1.6701	-0.6677	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Aluminum	9280	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Antimony	20.7	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Arsenic	13.9	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Barium	632	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Beryllium	0.43	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Cadmium	1.6	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Calcium	26500	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Chromium	44.8	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Cobalt	17.7	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Copper	720	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Iron	79700	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Lead	446	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Magnesium	5520	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Manganese	1500	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Mercury	0.13	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Nickel	9.6	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Potassium	1740	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Selenium	3.2	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Silver	3.9	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Sodium	666	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Thallium	2.3	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Vanadium	26.2	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River southern tip of island south	CS042	2001-05-23	Unk	Sediment	Zinc	8710	TRUE	mg/kg	90	10	1557.569946	438777.681	5415287.429	OU 1 North	-3.8134	2.5293	0.2176	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Aluminum	15500	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Antimony	27.1	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Arsenic	20.3	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Barium	1140	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Beryllium	0.69	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Cadmium	1.6	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Calcium	46900	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Chromium	76.8	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Cobalt	35.2	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Copper	1550	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Iron	137000	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Lead	1040	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Magnesium	5780	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Manganese	3060	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Mercury	0.06	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Nickel	12.2	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Potassium	3750	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Selenium	4.5	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Silver	5.7	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Sodium	1660	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Thallium	4.6	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Vanadium	39.2	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River north of Fivemile Creek	CS043	2001-05-23	Unk	Sediment	Zinc	15000	TRUE	mg/kg	90	0	-1208.579956	441569.8659	5418237.93	OU 1 North	-3.5912	3.948	0.5297	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Aluminum	21100	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Arsenic	25.5	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Barium	2160	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Beryllium	0.99	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Calcium	69900	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Chromium	142	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Cobalt	59	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Copper	2900	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Iron	239000	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Lead	316	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Magnesium	5770	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Manganese	4040	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Nickel	17	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Potassium	4300	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Selenium	0.68	FALSE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Silver	7.5	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Sodium	2210	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Thallium	0.78	FALSE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Vanadium	42.3	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River on beach at Northport	CS044	2001-05-31	Unk	Sediment	Zinc	20100	TRUE	mg/kg	90	10	-81.0100021	443435.8853	5419141.325	OU 1 North	-1.6726	6.6368	-0.0932	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Aluminum	4710	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Antimony	9.9	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Arsenic	7.6	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Barium	486	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Beryllium	0.27	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Cadmium	4.8	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Calcium	54000	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Chromium	20.7	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Cobalt	8.4	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Copper	245	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Iron	28000	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Lead	199	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Magnesium	26600	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Manganese	585	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Mercury	0.06	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Nickel	10.4	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Potassium	888	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Selenium	0.67	FALSE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Silver	1.6	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Sodium	269	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Thallium	0.77	FALSE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Vanadium	22.1	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Upper Columbia River north of Big Sheep Creek	CS045	2001-05-31	Unk	Sediment	Zinc	2430	TRUE	mg/kg	79.20792079	19.8019802	104.0400009	444247.9711	5420877.045	OU 1 North	-3.9455	-0.2529	-2.3638	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Aluminum	17400	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Antimony	57.5	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Arsenic	30.3	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Barium	1970	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Beryllium	0.86	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Calcium	57600	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Chromium	135	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Cobalt	73.5	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Copper	2520	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Iron	176000	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Lead	409	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Magnesium	5040	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Manganese	3680	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Nickel	15.6	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Potassium	3580	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Selenium	1.4	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Silver	10.2	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Sodium	2230	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Thallium	0.87	FALSE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Vanadium	39.1	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River south of Steamboat Rock	CS046	2001-05-31	Unk	Sediment	Zinc	17500	TRUE	mg/kg	95	0	202.5	444836.0469	5420669.854	OU 1 North	-1.8877	6.4249	0.0262	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Aluminum	17800	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Antimony	45.2	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Arsenic	21.6	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Barium	1690	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Beryllium	0.77	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Cadmium	0.19	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Calcium	66400	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Chromium	112	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Cobalt	47.3	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Copper	2160	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Iron	178000	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Lead	417	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Magnesium	10000	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Manganese	3240	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Nickel	14.4	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Potassium	3490	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Selenium	0.68	FALSE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Silver	7.4	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Sodium	1610	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Thallium	0.78	FALSE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Vanadium	37.7	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River northeast of Steamboat Rock	CS047	2001-05-31	Unk	Sediment	Zinc	18200	TRUE	mg/kg	99	0	194.9100037	445696.6217	5420810.003	OU 1 North	-2.3438	5.3395	-0.3966	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Aluminum	18100	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Antimony	34.9	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Arsenic	30.3	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Barium	1660	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Beryllium	0.75	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Calcium	58600	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Chromium	113	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Cobalt	33.8	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Copper	2160	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Iron	179000	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Lead	317	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Magnesium	6030	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Manganese	3130	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Nickel	13	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Potassium	3480	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Selenium	1.4	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Silver	5.9	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Sodium	1530	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Thallium	0.76	FALSE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Vanadium	36.3	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River north of Goodeve Creek	CS048	2001-05-31	Unk	Sediment	Zinc	16500	TRUE	mg/kg	100	0	154.7100067	446372.4727	5421075.78	OU 1 North	-1.9234	5.9265	-0.5894	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Aluminum	18700	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Antimony	7.4	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Arsenic	7.6	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Barium	681	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Beryllium	0.71	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Calcium	46900	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Chromium	64	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Cobalt	15	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Copper	997	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Iron	165000	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Lead	282	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Magnesium	5750	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Manganese	2950	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Nickel	8.1	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Potassium	3770	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Selenium	2.1	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Silver	3.7	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Sodium	1050	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Thallium	0.79	FALSE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Vanadium	38.2	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River on point bar southwest of Scriver Creek	CS049	2001-06-01	Unk	Sediment	Zinc	15400	TRUE	mg/kg	100	0	1092.089966	447225.9725	5421271.594	OU 1 North	-1.7602	5.1176	0.2614	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Aluminum	8170	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Antimony	20	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Arsenic	11.8	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Barium	763	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Beryllium	0.38	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Cadmium	2.4	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Calcium	25300	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Chromium	30.2	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Cobalt	7.9	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Copper	444	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Iron	67100	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Lead	309	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Magnesium	8540	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Manganese	1080	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Mercury	0.29	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Nickel	12.5	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Potassium	1400	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Selenium	1.4	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Silver	2.7	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Sodium	385	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Thallium	0.91	FALSE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Vanadium	28.8	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River south of Tom Bush Creek	CS050	2001-06-01	Unk	Sediment	Zinc	4900	TRUE	mg/kg	73.26732673	25.74257426	-1158.290039	451556.1097	5423919.287	OU 1 North	-4.2184	0.884	-0.6951	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Aluminum	21100	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Antimony	61.3	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Arsenic	42.8	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Barium	2440	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Beryllium	1	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Calcium	72400	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Chromium	165	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Cobalt	85.7	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Copper	3300	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Iron	245000	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Lead	512	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Magnesium	5970	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Manganese	4360	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Nickel	19.4	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Potassium	4330	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Selenium	0.68	FALSE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Silver	12.6	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Sodium	2630	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Thallium	0.78	FALSE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Vanadium	45	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River at 'Black Sand Beach'	CS051	2001-06-01	Unk	Sediment	Zinc	22300	TRUE	mg/kg	100	0	-77.4800034	452582.8438	5424437.574	OU 1 North	-1.7328	6.7882	-0.1838	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Aluminum	11000	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Antimony	51.4	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Arsenic	23.1	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Barium	989	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Beryllium	0.57	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Calcium	30800	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Chromium	72	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Cobalt	33.4	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Copper	1330	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Iron	96900	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Lead	276	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Magnesium	3990	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Manganese	1990	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Nickel	13.6	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Potassium	2160	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Selenium	1.5	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Silver	8.5	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Sodium	1000	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Thallium	0.89	FALSE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Vanadium	28.6	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Upper Columbia River on boulder bar near border	CS052	2001-06-01	Unk	Sediment	Zinc	8820	TRUE	mg/kg	85	15	-378.1300049	453522.9262	5427426.331	OU 1 North	-1.9701	5.0974	-0.1102	1
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Aluminum	13600	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Antimony	1.1	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Arsenic	6.2	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Barium	172	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Cadmium	0.52	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Calcium	5080	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Chromium	24.8	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Cobalt	7.8	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Copper	19	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Iron	18700	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Lead	37.7	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Magnesium	5060	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Manganese	588	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Nickel	20.1	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Potassium	3100	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Selenium	0.89	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Silver	0.67	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Sodium	258	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Thallium	0.92	FALSE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Vanadium	31	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS001	2001-06-05	Unk	Sediment	Zinc	85.8	TRUE	mg/kg	5	95	1314.530029	413628.9377	5349016.018	US Tributary	1.8653	-0.5442	0.7711	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Aluminum	12900	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Antimony	0.89	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Arsenic	6.6	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Barium	155	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Beryllium	0.69	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Cadmium	0.3	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Calcium	9080	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Chromium	32	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Cobalt	9.4	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Copper	23.9	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Iron	21800	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Lead	27.7	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Magnesium	7920	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Manganese	546	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Nickel	27.5	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Potassium	3100	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Selenium	1.1	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Silver	0.75	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Sodium	344	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Thallium	0.9	FALSE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Vanadium	41.4	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, Clover Leaf Beach Campground	TS002	2001-06-05	Unk	Sediment	Zinc	84.5	TRUE	mg/kg	0.99009901	99.00990099	-693.5	415033.2274	5349963.869	US Tributary	2.5534	-0.2949	0.1606	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Aluminum	14400	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Antimony	0.76	FALSE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Arsenic	6.2	FALSE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Barium	159	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Beryllium	0.72	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Calcium	7180	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Chromium	29.4	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Cobalt	9	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Copper	25.2	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Iron	21700	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Lead	14.8	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Magnesium	6720	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Manganese	612	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Nickel	25.3	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Potassium	3530	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Selenium	1.1	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Silver	0.66	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Sodium	326	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Thallium	0.99	FALSE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Vanadium	37.7	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Unnamed, T32N R37E, Section 8	TS003	2001-06-03	Unk	Sediment	Zinc	85.8	TRUE	mg/kg	30	65	1314.530029	412999.5759	5349527.408	US Tributary	3.2559	0.4148	0.1873	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Aluminum	8360	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Antimony	2.9	FALSE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Arsenic	4.6	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Barium	130	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Beryllium	0.45	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Cadmium	0.29	FALSE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Calcium	13400	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Chromium	19.8	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Cobalt	6.1	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Copper	12.8	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Iron	17000	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Lead	8.6	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Magnesium	3520	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Manganese	939	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Mercury	0.24	FALSE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Nickel	15.7	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Potassium	1560	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Selenium	3.7	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Silver	0.77	FALSE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Sodium	685	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Thallium	3.7	FALSE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Vanadium	19.4	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Stranger Creek	TS004	2001-06-05	Unk	Sediment	Zinc	49.2	TRUE	mg/kg	29.7029703	70.2970297	2043.550049	412257.6328	5349526.648	US Tributary	1.8115	0.5911	-0.2566	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Aluminum	3170	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Antimony	0.94	FALSE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Arsenic	3.7	FALSE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Barium	49.3	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Cadmium	0.09	FALSE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Calcium	1630	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Chromium	8.9	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Cobalt	2.4	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Copper	4.7	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Iron	6600	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Lead	2.9	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Magnesium	1580	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Manganese	172	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Mercury	0.08	FALSE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Nickel	6.4	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Potassium	629	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Selenium	1.1	FALSE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Silver	0.25	FALSE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Sodium	265	FALSE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Thallium	1.2	FALSE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Vanadium	8.5	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Hall Creek	TS005	2001-06-03	Unk	Sediment	Zinc	19.5	TRUE	mg/kg	90	10	2339.469971	410775.0145	5350803.386	US Tributary	2.4552	0.0312	0.1409	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Aluminum	7830	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Antimony	1	FALSE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Arsenic	4.7	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Barium	140	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Beryllium	0.4	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Cadmium	0.1	FALSE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Calcium	15800	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Chromium	18.3	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Cobalt	5.3	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Copper	9.9	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Iron	12800	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Lead	8.1	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Magnesium	3590	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Manganese	907	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Mercury	0.08	FALSE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Nickel	14.4	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Potassium	1590	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Selenium	2.2	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Silver	0.61	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Sodium	394	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Thallium	1.3	FALSE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Vanadium	19.9	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Cobbs Creek	TS006	2001-06-05	Unk	Sediment	Zinc	49.1	TRUE	mg/kg	59.40594059	40.59405941	719.5700073	411882.6449	5352237.805	US Tributary	2.3772	0.9451	-0.966	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Aluminum	12500	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Antimony	0.68	FALSE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Arsenic	5.7	FALSE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Barium	151	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Beryllium	0.55	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Cadmium	0.38	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Calcium	31800	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Chromium	24.5	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Cobalt	7.6	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Copper	21.6	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Iron	17200	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Lead	26.6	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Magnesium	5030	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Manganese	453	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Nickel	21.3	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Potassium	2810	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Selenium	0.82	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Silver	0.48	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Sodium	309	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Thallium	0.88	FALSE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Vanadium	23.8	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 28	TS007	2001-06-04	Unk	Sediment	Zinc	73.5	TRUE	mg/kg	75	20	-1956	414653.6766	5352980.613	US Tributary	1.6404	-0.3001	-0.978	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Aluminum	12100	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Antimony	0.95	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Arsenic	4.6	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Barium	160	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Beryllium	0.6	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Cadmium	0.79	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Calcium	6970	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Chromium	22.7	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Cobalt	6.7	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Copper	18.8	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Iron	17200	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Lead	44.9	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Magnesium	5010	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Manganese	540	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Nickel	17.6	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Potassium	3890	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Selenium	0.76	FALSE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Silver	0.59	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Sodium	295	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Thallium	0.87	FALSE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Vanadium	28.1	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 30	TS008	2001-06-05	Unk	Sediment	Zinc	127	TRUE	mg/kg	15	85	879.8599854	411754.7168	5354032.712	US Tributary	1.2709	-0.756	0.6989	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Aluminum	14000	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Antimony	0.8	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Arsenic	6.2	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Barium	201	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Beryllium	0.64	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Calcium	31200	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Chromium	29.9	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Cobalt	8.5	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Copper	23.7	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Iron	19900	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Lead	15.9	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Magnesium	9140	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Manganese	482	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Nickel	24.9	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Potassium	3770	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Selenium	0.78	FALSE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Silver	0.5	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Sodium	372	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Thallium	0.89	FALSE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Vanadium	32.9	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unproposed sampling location	TS009	2001-06-04	Unk	Sediment	Zinc	68.8	TRUE	mg/kg	100	0	-1069.939941	414329.2119	5354121.527	US Tributary	2.9121	0.3287	-1.5248	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Aluminum	3770	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Antimony	1.3	FALSE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Arsenic	4.6	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Barium	157	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Cadmium	0.18	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Calcium	131000	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Chromium	21	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Cobalt	2.5	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Copper	9.4	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Iron	5460	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Lead	5.6	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Magnesium	2700	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Manganese	170	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Nickel	10	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Potassium	830	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Selenium	3.6	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Silver	0.36	FALSE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Sodium	411	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Thallium	1.7	FALSE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Vanadium	9.2	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 21	TS010	2001-06-04	Unk	Sediment	Zinc	30.9	TRUE	mg/kg	80	0	-1566.27002	414231.3743	5354666.037	US Tributary	0.5117	-0.1366	-3.8532	2
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Aluminum	13100	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Antimony	0.89	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Arsenic	3.7	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Barium	218	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Beryllium	0.66	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Cadmium	0.7	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Calcium	32200	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Chromium	27.5	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Cobalt	6.6	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Copper	24.4	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Iron	18100	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Lead	53.4	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Magnesium	6800	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Manganese	652	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Nickel	20.2	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Potassium	3180	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Selenium	0.82	FALSE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Silver	0.53	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Sodium	370	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Thallium	0.94	FALSE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Vanadium	32.8	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 19	TS011	2001-06-05	Unk	Sediment	Zinc	81.8	TRUE	mg/kg	10	90	993.9500122	411607.4807	5355155.926	US Tributary	0.9939	-0.5035	-0.6256	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Aluminum	13200	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Antimony	0.81	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Arsenic	3.5	FALSE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Barium	108	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Beryllium	0.65	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Cadmium	0.08	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Calcium	6460	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Chromium	30.5	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Cobalt	7	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Copper	22.2	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Iron	19100	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Lead	14.8	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Magnesium	6740	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Manganese	249	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Nickel	20.6	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Potassium	2720	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Selenium	0.81	FALSE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Silver	0.6	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Sodium	376	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Thallium	0.93	FALSE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Vanadium	28.8	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Unnamed, T33N, R37E, Section 18	TS012	2001-06-03	Unk	Sediment	Zinc	71	TRUE	mg/kg	40	60	940.5900269	411566.3913	5356953.205	US Tributary	3.1441	-0.088	0.4494	3
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Aluminum	5060	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Antimony	1	FALSE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Arsenic	5.4	FALSE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Barium	106	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Beryllium	0.22	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Cadmium	0.1	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Calcium	65700	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Chromium	15.3	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Cobalt	3.4	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Copper	9.3	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Iron	10300	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Lead	6.4	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Magnesium	3290	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Manganese	122	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Mercury	0.08	FALSE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Nickel	14.3	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Potassium	818	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Selenium	1.1	FALSE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Silver	0.27	FALSE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Sodium	341	FALSE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Thallium	1.3	FALSE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Vanadium	13.6	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Magee Creek	TS013	2001-06-04	Unk	Sediment	Zinc	35.2	TRUE	mg/kg	75	25	-1289.349976	413884.5298	5357032.621	US Tributary	1.54	-0.2035	-3.2205	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Aluminum	5890	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Antimony	1.4	FALSE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Arsenic	2.8	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Barium	144	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Beryllium	0.34	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Cadmium	0.14	FALSE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Calcium	168000	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Chromium	14.1	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Cobalt	3.5	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Copper	11.9	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Iron	8310	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Lead	5.8	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Magnesium	4500	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Manganese	292	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Mercury	0.12	FALSE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Nickel	11.4	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Potassium	1580	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Selenium	1.6	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Silver	0.37	FALSE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Sodium	472	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Thallium	1.8	FALSE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Vanadium	14.8	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Jennings Creek	TS014	2001-06-04	Unk	Sediment	Zinc	30.7	TRUE	mg/kg	90	10	-1326.550049	413798.6349	5357584.014	US Tributary	1.2198	-0.0648	-3.4646	2
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Aluminum	5940	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Antimony	1.5	FALSE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Arsenic	9.5	FALSE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Barium	90.8	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Beryllium	0.28	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Cadmium	0.15	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Calcium	8190	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Chromium	20.8	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Cobalt	6	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Copper	15.6	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Iron	14200	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Lead	8	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Magnesium	3890	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Manganese	1130	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Mercury	0.12	FALSE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Nickel	15.3	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Potassium	1090	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Selenium	1.7	FALSE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Silver	0.52	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Sodium	544	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Thallium	2	FALSE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Vanadium	21.1	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Little Jim Creek	TS015	2001-06-03	Unk	Sediment	Zinc	46.9	TRUE	mg/kg	60	40	682.3400269	411630.3086	5357906.704	US Tributary	2.3283	1.0019	-0.5871	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Aluminum	5600	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Antimony	0.96	FALSE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Barium	68.9	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Beryllium	0.28	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Calcium	3720	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Chromium	12.2	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Cobalt	4.2	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Copper	18	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Iron	10800	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Lead	10.2	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Magnesium	2930	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Manganese	284	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Nickel	12.4	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Potassium	1420	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Selenium	0.74	FALSE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Silver	0.32	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Sodium	204	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Thallium	0.85	FALSE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Vanadium	19.1	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed, T33N R36E, Section 1	TS016	2001-06-05	Unk	Sediment	Zinc	45.6	TRUE	mg/kg	49.5049505	50.4950495	600.4899902	411213.6033	5359930.907	US Tributary	2.422	-0.0671	-0.4697	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Aluminum	11800	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Antimony	1	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Arsenic	3.8	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Barium	139	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Beryllium	0.58	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Calcium	4650	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Chromium	21.8	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Cobalt	6.5	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Copper	17.1	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Iron	16200	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Lead	17.3	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Magnesium	4900	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Manganese	438	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Nickel	17.5	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Potassium	3110	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Selenium	0.76	FALSE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Silver	0.49	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Sodium	260	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Thallium	0.87	FALSE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Vanadium	25.8	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3
2001 Expanded Site Investigation	Unnamed T33N R37E, Section 4	TS017	2001-06-05	Unk	Sediment	Zinc	64.1	TRUE	mg/kg	20	80	-1446.579956	413298.0568	5360296.577	US Tributary	2.9007	0.208	0.5076	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Aluminum	10800	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Antimony	0.71	FALSE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Arsenic	3.3	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Barium	120	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Calcium	16100	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Chromium	23.6	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Cobalt	6	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Copper	19.1	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Iron	15700	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Lead	11.7	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Magnesium	7110	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Manganese	397	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Nickel	17.7	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Potassium	3420	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Selenium	0.8	FALSE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Silver	0.34	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Sodium	295	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Thallium	0.92	FALSE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Vanadium	26.4	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T33N R37E, Section 5	TS018	2001-06-06	Unk	Sediment	Zinc	60.6	TRUE	mg/kg	10	90	-1546.130005	413227.2932	5360703.589	US Tributary	2.9241	0.1046	-0.725	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Aluminum	6920	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Antimony	0.66	FALSE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Arsenic	3.8	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Barium	71.3	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Beryllium	0.29	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Calcium	10800	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Chromium	17.1	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Cobalt	5.5	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Copper	14.1	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Iron	15000	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Lead	8.4	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Manganese	297	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Nickel	23.8	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Potassium	1730	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Selenium	0.75	FALSE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Silver	0.39	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Sodium	198	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Thallium	0.86	FALSE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Vanadium	18.9	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R37E, Section 32	TS019	2001-06-06	Unk	Sediment	Zinc	43.9	TRUE	mg/kg	65	15	-1450.969971	413077.3342	5360932.355	US Tributary	2.9619	-0.0438	-0.7737	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Aluminum	6450	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Antimony	2.1	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Arsenic	4.4	FALSE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Barium	78.6	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Beryllium	0.35	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Cadmium	0.15	FALSE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Calcium	10900	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Chromium	17.6	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Cobalt	3.4	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Copper	12.9	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Iron	9740	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Lead	8.5	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Magnesium	3070	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Manganese	291	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Mercury	0.12	FALSE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Nickel	10.2	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Potassium	1300	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Selenium	2.2	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Silver	0.4	FALSE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Sodium	480	FALSE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Thallium	2	FALSE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Vanadium	16.2	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 36	TS020	2001-06-03	Unk	Sediment	Zinc	50.2	TRUE	mg/kg	10	90	793.1500244	410119.2472	5362488.172	US Tributary	1.753	-0.1466	-0.6301	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Aluminum	11400	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Antimony	0.84	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Arsenic	6.6	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Barium	146	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Beryllium	0.58	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Cadmium	0.29	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Calcium	13300	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Chromium	26.8	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Cobalt	7.5	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Copper	23.3	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Iron	19300	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Lead	24.9	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Magnesium	7320	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Manganese	439	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Nickel	24.7	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Potassium	2980	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Selenium	0.71	FALSE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Silver	0.63	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Sodium	337	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Thallium	0.82	FALSE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Vanadium	40.6	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Unnamed, T34N R36E, Section 25	TS021	2001-06-03	Unk	Sediment	Zinc	110	TRUE	mg/kg	20	80	809.210022	410178.8982	5363469.42	US Tributary	2.1635	-0.469	-0.4041	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Aluminum	7770	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Antimony	1.5	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Arsenic	3.5	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Barium	173	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Beryllium	0.37	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Cadmium	0.13	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Calcium	34300	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Chromium	20.9	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Cobalt	5.3	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Copper	13.4	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Iron	13800	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Lead	8.6	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Magnesium	4150	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Manganese	363	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Mercury	0.09	FALSE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Nickel	19.8	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Potassium	1430	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Selenium	1.3	FALSE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Silver	0.38	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Sodium	378	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Thallium	1.5	FALSE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Vanadium	27.5	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Cheweka Creek	TS022	2001-06-06	Unk	Sediment	Zinc	63.1	TRUE	mg/kg	60	40	-1593.209961	412657.6839	5363475.722	US Tributary	1.8689	0.2315	-1.6194	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Aluminum	10100	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Antimony	1.3	FALSE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Arsenic	5.3	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Barium	201	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Beryllium	0.55	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Cadmium	0.13	FALSE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Calcium	83500	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Chromium	23.6	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Cobalt	7.1	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Copper	21.1	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Iron	16200	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Lead	11	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Magnesium	7170	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Manganese	414	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Nickel	21.1	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Potassium	2580	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Selenium	1.4	FALSE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Silver	0.36	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Sodium	476	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Thallium	1.7	FALSE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Vanadium	31.8	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS023	2001-06-06	Unk	Sediment	Zinc	77.1	TRUE	mg/kg	9.900990099	90.0990099	-1370.859985	412618.5523	5363559.271	US Tributary	1.9116	0.0669	-2.4078	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Aluminum	13400	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Antimony	1.1	FALSE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Arsenic	4.9	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Barium	143	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Beryllium	0.7	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Calcium	5340	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Chromium	35.1	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Cobalt	10.8	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Copper	26.7	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Iron	24100	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Lead	14.7	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Magnesium	7090	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Manganese	594	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Nickel	31.9	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Potassium	3950	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Selenium	0.72	FALSE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Silver	0.78	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Sodium	197	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Thallium	0.83	FALSE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Vanadium	36.9	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 29	TS024	2001-06-06	Unk	Sediment	Zinc	82.8	TRUE	mg/kg	29.7029703	69.30693069	-1370.859985	412509.9432	5363979.667	US Tributary	3.7216	0.471	0.6558	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Aluminum	9340	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Antimony	1.1	FALSE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Arsenic	4.5	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Barium	74.5	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Beryllium	0.41	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Calcium	3400	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Chromium	20.5	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Cobalt	6.9	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Copper	16.9	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Iron	16100	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Lead	16.8	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Magnesium	4660	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Manganese	359	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Nickel	19.6	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Potassium	1900	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Selenium	0.72	FALSE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Silver	0.49	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Sodium	188	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Thallium	0.83	FALSE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Vanadium	24.6	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 20	TS025	2001-06-06	Unk	Sediment	Zinc	68.8	TRUE	mg/kg	65	35	-1101.800049	412186.0399	5364835.201	US Tributary	3.1256	0.0754	0.686	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Aluminum	4500	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Antimony	1.1	FALSE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Arsenic	3.1	FALSE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Barium	46.1	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Beryllium	0.25	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Cadmium	0.11	FALSE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Calcium	2340	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Chromium	7.6	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Cobalt	1.9	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Copper	3.7	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Iron	6280	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Lead	3.1	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Magnesium	1670	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Manganese	106	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Mercury	0.08	FALSE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Nickel	5.1	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Potassium	868	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Selenium	1.2	FALSE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Silver	0.32	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Sodium	358	FALSE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Thallium	1.4	FALSE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Vanadium	9.1	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Barnaby Creek	TS026	2001-06-03	Unk	Sediment	Zinc	21.4	TRUE	mg/kg	40	50	1444.189941	409599.9034	5365221.429	US Tributary	2.4052	-0.5979	-0.0626	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Aluminum	8890	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Antimony	1.4	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Arsenic	4.1	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Barium	160	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Beryllium	0.44	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Cadmium	0.15	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Calcium	7610	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Chromium	14.8	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Cobalt	6	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Copper	14.5	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Iron	12600	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Lead	16.7	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Magnesium	3650	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Manganese	2020	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Mercury	0.09	FALSE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Nickel	14.4	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Potassium	1790	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Selenium	2.2	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Silver	0.59	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Sodium	334	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Thallium	1.4	FALSE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Vanadium	20.7	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Rotter Bay Creek	TS027	2001-06-04	Unk	Sediment	Zinc	62.5	TRUE	mg/kg	35	65	-1199.290039	412132.1562	5366365.951	US Tributary	1.7879	1.019	0.0775	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Aluminum	8550	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Antimony	1.7	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Arsenic	7.2	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Barium	164	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Beryllium	0.39	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Cadmium	0.16	FALSE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Calcium	22800	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Chromium	18.6	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Cobalt	7.1	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Copper	21.8	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Iron	16300	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Lead	18.3	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Magnesium	4510	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Manganese	1010	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Mercury	0.13	FALSE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Nickel	22.1	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Potassium	1680	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Selenium	1.8	FALSE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Silver	0.55	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Sodium	427	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Thallium	2.1	FALSE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Vanadium	22.5	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Quillisascut Creek	TS028	2001-06-06	Unk	Sediment	Zinc	90.4	TRUE	mg/kg	59.40594059	40.59405941	-1113.959961	411640.5148	5367223.905	US Tributary	1.4148	0.6449	-1.1794	3
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Aluminum	6760	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Antimony	0.73	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Arsenic	5.7	FALSE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Barium	74.5	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Beryllium	0.23	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Cadmium	13.1	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Calcium	136000	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Chromium	11.7	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Cobalt	4.3	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Copper	18.6	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Iron	12100	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Lead	17.9	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Magnesium	4870	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Manganese	183	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Nickel	45.6	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Potassium	1110	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Selenium	0.76	FALSE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Silver	0.22	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Thallium	0.87	FALSE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Vanadium	29	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R36E, Section 11	TS029	2001-06-03	Unk	Sediment	Zinc	727	TRUE	mg/kg	29.7029703	30.69306931	617.2600098	409756.0741	5367934.907	US Tributary	-1.3106	-2.9963	-2.3871	2
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Aluminum	6090	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Antimony	0.67	FALSE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Arsenic	4.2	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Barium	59.4	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Beryllium	0.27	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Cadmium	0.17	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Calcium	4500	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Chromium	13.4	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Cobalt	4.4	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Copper	13.4	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Iron	11000	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Lead	8.6	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Magnesium	3200	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Manganese	285	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Nickel	13.7	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Potassium	1050	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Selenium	0.76	FALSE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Silver	0.31	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Sodium	168	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Thallium	0.88	FALSE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Vanadium	17.8	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Unnamed, T34N, R37E, Section 6	TS030	2001-06-06	Unk	Sediment	Zinc	54.7	TRUE	mg/kg	65	35	-773.6799927	411791.0037	5368985.967	US Tributary	2.1574	-0.4118	0.0488	3
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Aluminum	3010	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Antimony	4.9	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Arsenic	5.8	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Barium	72.5	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Beryllium	0.13	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Cadmium	2.4	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Calcium	7750	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Chromium	5.2	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Cobalt	2.2	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Copper	11.8	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Iron	5420	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Lead	115	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Magnesium	1450	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Manganese	157	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Mercury	0.13	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Nickel	6.8	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Potassium	1280	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Selenium	1.4	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Silver	0.25	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Sodium	228	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Vanadium	8.8	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Cuba Canyon Creek	TS031	2001-06-06	Unk	Sediment	Zinc	180	TRUE	mg/kg	100	0	886.25	410731.3462	5370272.056	US Tributary	-2.4386	-2.2708	-0.5975	2
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Aluminum	6880	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Antimony	0.69	FALSE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Arsenic	4.6	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Barium	73.1	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Beryllium	0.33	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Calcium	17800	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Chromium	12	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Cobalt	5	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Copper	15.8	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Iron	13700	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Lead	8.8	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Magnesium	3760	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Manganese	251	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Nickel	16.7	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Potassium	1200	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Selenium	0.78	FALSE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Silver	0.41	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Sodium	189	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Thallium	0.9	FALSE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Vanadium	17.2	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 31	TS032	2001-06-07	Unk	Sediment	Zinc	53	TRUE	mg/kg	80	15	1441.920044	410622.5481	5370870.058	US Tributary	2.2516	0.0027	-1.3692	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Aluminum	12200	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Antimony	3.4	FALSE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Arsenic	8.5	FALSE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Barium	188	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Beryllium	0.64	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Cadmium	0.94	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Chromium	16.3	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Cobalt	4.9	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Copper	21.7	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Iron	14600	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Lead	14.5	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Magnesium	3860	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Manganese	548	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Mercury	0.27	FALSE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Nickel	17.4	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Potassium	1740	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Selenium	4.8	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Silver	0.91	FALSE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Sodium	1010	FALSE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Thallium	4.4	FALSE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Vanadium	24.7	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Le Fleur Creek	TS033	2001-06-03	Unk	Sediment	Zinc	95.8	TRUE	mg/kg	10	90	1556.569946	410801.6641	5371305.719	US Tributary	0.47	-0.6592	-0.9548	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Aluminum	4270	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Antimony	0.67	FALSE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Arsenic	1.7	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Barium	50.1	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Beryllium	0.22	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Calcium	9770	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Chromium	9.6	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Cobalt	3.1	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Copper	7.9	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Iron	8030	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Lead	5.1	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Magnesium	3170	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Manganese	194	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Nickel	9.3	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Potassium	944	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Selenium	0.76	FALSE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Silver	0.18	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Sodium	182	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Thallium	0.87	FALSE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Vanadium	14	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 32	TS034	2001-06-07	Unk	Sediment	Zinc	33.6	TRUE	mg/kg	100	0	-1020.330017	413575.0522	5370976.186	US Tributary	2.2849	-0.2259	-0.8285	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Aluminum	8030	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Antimony	0.82	FALSE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Arsenic	6.4	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Barium	163	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Beryllium	0.35	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Cadmium	0.33	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Calcium	151000	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Chromium	15.8	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Cobalt	5.2	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Copper	17.9	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Iron	12300	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Lead	12.2	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Magnesium	4860	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Manganese	348	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Nickel	18	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Potassium	1620	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Selenium	1.5	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Silver	0.26	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Sodium	299	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Vanadium	20.6	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 33 , d	TS035	2001-06-09	Unk	Sediment	Zinc	61.2	TRUE	mg/kg	59.40594059	39.6039604	-1312.069946	413931.7895	5371401.459	US Tributary	0.9221	-0.3584	-3.3295	2
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Aluminum	20000	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Antimony	0.67	FALSE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Arsenic	5.5	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Barium	301	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Beryllium	0.98	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Cadmium	0.2	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Calcium	7790	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Chromium	40.1	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Cobalt	14.1	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Copper	39.9	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Iron	27800	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Lead	37.3	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Magnesium	8670	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Manganese	836	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Nickel	38.4	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Potassium	6120	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Selenium	0.76	FALSE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Silver	0.99	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Sodium	279	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Thallium	0.87	FALSE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Vanadium	44.8	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 33	TS036	2001-06-09	Unk	Sediment	Zinc	120	TRUE	mg/kg	4.95049505	94.05940594	-1492.569946	414121.8773	5371646.188	US Tributary	2.6739	0.1692	0.7228	3
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Aluminum	5010	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Antimony	1	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Arsenic	3.2	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Barium	45.1	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Beryllium	0.27	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Cadmium	0.47	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Calcium	5320	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Chromium	10.3	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Cobalt	3	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Copper	8.3	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Iron	7960	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Lead	23.7	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Magnesium	2150	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Manganese	213	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Nickel	7.9	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Potassium	1100	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Selenium	0.74	FALSE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Silver	0.38	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Sodium	181	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Thallium	0.84	FALSE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Vanadium	13.7	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unproposed sampling location	TS037	2001-06-04	Unk	Sediment	Zinc	67.7	TRUE	mg/kg	100	0	-1069.939941	414933.5182	5373650.43	US Tributary	0.8965	-1.1594	0.3298	2
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Aluminum	14800	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Antimony	1.6	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Arsenic	19.3	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Barium	315	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Beryllium	0.71	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Cadmium	0.74	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Calcium	6750	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Chromium	35.1	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Cobalt	13.5	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Copper	39.6	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Iron	30100	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Lead	95.6	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Magnesium	6710	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Manganese	803	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Mercury	0.11	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Nickel	41.6	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Potassium	3920	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Selenium	0.74	FALSE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Silver	1	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Sodium	259	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Thallium	0.85	FALSE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Vanadium	48.5	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 22	TS038	2001-06-04	Unk	Sediment	Zinc	147	TRUE	mg/kg	70	20	-737.1500244	415182.976	5373978.272	US Tributary	1.288	-0.6652	0.3029	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Aluminum	4430	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Antimony	0.84	FALSE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Arsenic	1.4	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Barium	43.3	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Beryllium	0.21	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Calcium	6760	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Chromium	8.8	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Cobalt	2.2	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Copper	6.5	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Iron	7670	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Lead	5.1	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Magnesium	2650	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Manganese	152	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Nickel	6.9	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Potassium	791	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Selenium	0.95	FALSE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Silver	0.25	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Sodium	245	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Vanadium	19.2	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Martin Creek	TS039	2001-06-07	Unk	Sediment	Zinc	46.4	TRUE	mg/kg	95	0	529.4400024	412546.1031	5374891.151	US Tributary	2.053	-0.5094	-0.3552	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Aluminum	5120	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Antimony	0.81	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Arsenic	2.4	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Beryllium	0.23	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Calcium	9240	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Chromium	9.4	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Cobalt	3	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Copper	7.9	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Iron	8670	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Lead	6.7	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Magnesium	4470	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Manganese	146	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Nickel	8.2	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Potassium	1180	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Selenium	0.72	FALSE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Silver	0.37	FALSE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Sodium	212	FALSE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Thallium	0.82	FALSE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Vanadium	14.4	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Unnamed, T35N, R37E, Section 15	TS040	2001-06-07	Unk	Sediment	Zinc	37.3	TRUE	mg/kg	100	0	-290.7999878	416075.7874	5375494.869	US Tributary	2.421	-0.4797	-1.1701	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Aluminum	5610	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Antimony	0.86	FALSE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Arsenic	3.5	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Barium	54.7	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Beryllium	0.28	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Cadmium	0.09	FALSE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Calcium	3690	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Chromium	12.8	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Cobalt	3.8	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Copper	9.6	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Iron	10800	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Lead	5.6	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Magnesium	3320	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Manganese	326	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Nickel	11.3	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Potassium	1070	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Selenium	0.97	FALSE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Silver	0.3	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Sodium	221	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Vanadium	18.1	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Roper Creek	TS041	2001-06-07	Unk	Sediment	Zinc	35	TRUE	mg/kg	60	40	1969.829956	413589.3826	5377056.771	US Tributary	2.8139	-0.0437	0.0943	3
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Aluminum	8280	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Antimony	2.6	FALSE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Arsenic	5.6	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Barium	153	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Beryllium	0.39	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Cadmium	0.7	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Calcium	61100	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Chromium	11.4	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Cobalt	5.2	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Copper	18.7	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Iron	12800	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Lead	11.5	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Magnesium	4950	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Manganese	235	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Mercury	0.12	FALSE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Nickel	18.3	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Potassium	1620	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Selenium	2.7	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Silver	0.41	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Sodium	453	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Thallium	1.8	FALSE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Vanadium	24.4	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Rickey Creek	TS042	2001-06-07	Unk	Sediment	Zinc	99.4	TRUE	mg/kg	50	50	-455.1099854	416152.1401	5376928.263	US Tributary	0.468	-1.0957	-2.3436	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Aluminum	3500	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Antimony	1.1	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Arsenic	2.9	FALSE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Barium	30.3	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Beryllium	0.16	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Cadmium	2	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Calcium	1780	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Chromium	6.1	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Cobalt	1.7	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Copper	5.5	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Iron	5010	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Lead	34.9	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Magnesium	1240	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Manganese	670	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Nickel	3.8	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Potassium	595	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Selenium	0.74	FALSE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Silver	0.28	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Sodium	219	FALSE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Thallium	0.84	FALSE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Vanadium	9.2	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Cougar Canyon Creek	TS043	2001-06-04	Unk	Sediment	Zinc	739	TRUE	mg/kg	69.30693069	30.69306931	1254.219971	414813.1762	5379093.702	US Tributary	-1.4164	-0.937	1.6677	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Aluminum	8460	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Antimony	0.73	FALSE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Arsenic	5.9	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Barium	145	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Beryllium	0.33	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Cadmium	0.58	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Calcium	98700	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Chromium	13	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Cobalt	4.6	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Copper	17.5	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Iron	11900	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Lead	17.9	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Magnesium	6770	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Manganese	257	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Nickel	14.3	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Potassium	1640	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Selenium	1.7	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Silver	0.43	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Sodium	287	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Thallium	0.94	FALSE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Vanadium	23.7	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Hallam Creek	TS044	2001-06-06	Unk	Sediment	Zinc	92.3	TRUE	mg/kg	90	10	-803.6099854	417082.937	5378995.873	US Tributary	0.4871	-1.0911	-3.0536	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Aluminum	7050	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Antimony	1.1	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Arsenic	5.3	FALSE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Barium	202	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Beryllium	0.28	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Cadmium	0.51	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Calcium	152000	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Chromium	10.5	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Cobalt	3.9	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Copper	21.2	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Iron	10100	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Lead	12.4	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Magnesium	3310	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Manganese	431	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Nickel	12.6	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Potassium	1540	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Selenium	1.1	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Silver	0.3	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Sodium	345	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Thallium	1	FALSE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Vanadium	17.4	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary west of Mingo Creek	TS045	2001-06-04	Unk	Sediment	Zinc	68.2	TRUE	mg/kg	4.95049505	94.05940594		420230.5218	5380515.362	US Tributary	-0.0399	-0.0572	-3.4235	2
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Aluminum	11700	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Antimony	2.2	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Arsenic	9.6	FALSE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Barium	101	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Beryllium	0.45	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Cadmium	0.14	FALSE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Calcium	43400	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Chromium	24.7	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Cobalt	10.4	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Copper	26.8	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Iron	23400	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Lead	13.2	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Magnesium	7910	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Manganese	372	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Mercury	0.21	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Nickel	24.1	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Potassium	1700	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Selenium	1.6	FALSE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Silver	0.73	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Sodium	479	FALSE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Thallium	1.9	FALSE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Vanadium	40.9	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Mingo Creek	TS046	2001-06-04	Unk	Sediment	Zinc	71.9	TRUE	mg/kg	39.6039604	59.40594059		420379.768	5380679.203	US Tributary	2.3949	-0.2428	-1.7045	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Aluminum	8700	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Antimony	1.2	FALSE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Arsenic	3.9	FALSE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Barium	132	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Beryllium	0.46	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Cadmium	0.12	FALSE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Calcium	10900	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Chromium	12.8	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Cobalt	5	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Copper	10.4	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Iron	14000	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Lead	11	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Magnesium	4850	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Manganese	390	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Nickel	11.8	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Potassium	1390	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Selenium	1.3	FALSE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Silver	0.65	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Sodium	391	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Thallium	1.5	FALSE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Vanadium	21.3	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Colville River	TS047	2001-06-04	Unk	Sediment	Zinc	57.3	TRUE	mg/kg	15	84		420606.8916	5380844.216	US Tributary	1.9639	0.0552	-0.7947	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Aluminum	1550	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Antimony	0.76	FALSE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Arsenic	1.4	FALSE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Barium	9.7	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Beryllium	0.1	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Calcium	1150	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Chromium	2	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Cobalt	0.53	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Copper	2.1	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Iron	3220	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Lead	1.2	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Magnesium	646	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Manganese	47.4	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Nickel	1.2	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Potassium	422	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Selenium	0.86	FALSE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Silver	0.2	FALSE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Sodium	209	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Thallium	0.99	FALSE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Vanadium	5.4	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Sherman Creek	TS048	2001-06-04	Unk	Sediment	Zinc	7.5	TRUE	mg/kg	79.20792079	0.99009901	880.3499756	415963.0537	5381736.794	US Tributary	2.0554	-1.0113	-0.0063	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Aluminum	3870	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Antimony	0.63	FALSE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Arsenic	1.7	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Barium	33.5	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Beryllium	0.23	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Calcium	2440	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Chromium	5.9	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Cobalt	2.1	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Copper	9.9	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Iron	5980	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Lead	6.8	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Magnesium	1780	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Manganese	126	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Nickel	5.1	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Potassium	790	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Selenium	0.72	FALSE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Silver	0.17	FALSE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Sodium	169	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Thallium	0.83	FALSE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Vanadium	12.6	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, SE qtr	TS049	2001-06-07	Unk	Sediment	Zinc	23.2	TRUE	mg/kg	100	0	430.1300049	416227.8072	5383690.669	US Tributary	2.0518	-0.5067	0.3857	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Aluminum	3760	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Antimony	1.1	FALSE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Arsenic	1.1	FALSE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Barium	25.9	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Beryllium	0.15	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Calcium	1850	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Chromium	9.4	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Cobalt	1.9	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Copper	13.6	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Iron	5970	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Lead	5.8	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Magnesium	1920	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Manganese	77.5	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Nickel	5.8	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Potassium	576	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Selenium	0.91	FALSE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Silver	0.45	FALSE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Sodium	303	FALSE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Thallium	1	FALSE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Vanadium	10.6	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unmapped tributary adjacent to TS051	TS050	2001-06-09	Unk	Sediment	Zinc	20.7	TRUE	mg/kg	69.30693069	29.7029703	465.0899963	416249.9656	5384083.232	US Tributary	1.9523	-0.5648	0.9307	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Aluminum	8560	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Antimony	0.91	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Arsenic	2.1	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Barium	87.4	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Beryllium	0.41	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Cadmium	0.56	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Calcium	10100	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Chromium	21.5	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Cobalt	4.6	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Copper	27	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Iron	11200	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Lead	34	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Magnesium	3580	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Manganese	338	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Nickel	12.3	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Potassium	1870	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Selenium	1.3	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Silver	0.6	FALSE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Sodium	255	FALSE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Thallium	1	FALSE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Vanadium	22.4	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 22, NE qtr	TS051	2001-06-07	Unk	Sediment	Zinc	65.8	TRUE	mg/kg	70	30	370.7999878	416369.3244	5384247.712	US Tributary	0.8931	-0.8074	0.6305	2
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Aluminum	2040	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Antimony	0.66	FALSE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Arsenic	1.7	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Barium	36.8	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Beryllium	0.14	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Calcium	2490	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Chromium	3.9	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Cobalt	1.9	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Copper	6.7	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Iron	5480	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Lead	8.4	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Magnesium	1210	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Manganese	449	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Nickel	3.8	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Potassium	581	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Selenium	0.75	FALSE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Silver	0.18	FALSE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Sodium	139	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Thallium	0.86	FALSE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Vanadium	6.7	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed, T36N, R37E, Section 15, SE qtr, western t	TS052	2001-06-07	Unk	Sediment	Zinc	17.5	TRUE	mg/kg	100	0	450.6099854	416443.0898	5385096.721	US Tributary	1.1799	0.625	0.112	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Aluminum	3080	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Antimony	0.7	FALSE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Arsenic	1.5	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Barium	25.8	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Calcium	1420	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Chromium	5.9	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Cobalt	1.9	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Copper	6.4	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Iron	5700	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Lead	3.9	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Magnesium	1430	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Manganese	109	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Nickel	4.8	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Potassium	792	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Selenium	0.79	FALSE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Silver	0.23	FALSE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Sodium	178	FALSE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Thallium	0.91	FALSE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Vanadium	10.7	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 15, SE qtr, eastern tr	TS053	2001-06-07	Unk	Sediment	Zinc	15.8	TRUE	mg/kg	85	15	391	416500.423	5385087.036	US Tributary	2.5159	-0.576	0.8714	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Aluminum	3670	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Antimony	0.6	FALSE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Arsenic	1.2	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Barium	42.4	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Beryllium	0.22	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Calcium	2470	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Chromium	8.4	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Cobalt	3.7	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Copper	7.3	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Iron	6800	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Lead	6	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Magnesium	2440	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Manganese	243	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Nickel	8.4	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Potassium	1120	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Selenium	0.68	FALSE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Silver	0.38	FALSE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Sodium	193	FALSE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Thallium	0.79	FALSE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Vanadium	12.8	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed T36N, R37E, Section 14, SW qtr	TS054	2001-06-07	Unk	Sediment	Zinc	22.4	TRUE	mg/kg	100	0	480.5400085	416799.7188	5385739.699	US Tributary	2.7607	0.0771	0.7601	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Aluminum	3740	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Antimony	0.88	FALSE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Arsenic	2.8	FALSE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Barium	72.2	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Beryllium	0.23	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Cadmium	0.09	FALSE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Calcium	13800	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Chromium	9.9	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Cobalt	2.6	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Copper	5.7	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Iron	7270	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Lead	3.9	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Magnesium	2310	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Manganese	288	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Nickel	7.5	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Potassium	937	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Selenium	1	FALSE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Silver	0.34	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Sodium	315	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Vanadium	12	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T36N, R38E, Section	TS055	2001-06-04	Unk	Sediment	Zinc	24.8	TRUE	mg/kg	90	10	-2839.840088	420433.0606	5385258.19	US Tributary	2.0491	0.3026	-1.4817	3
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Aluminum	5370	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Antimony	0.74	FALSE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Arsenic	4.3	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Barium	114	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Beryllium	0.21	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Calcium	161000	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Chromium	9.8	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Cobalt	3.4	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Copper	12.2	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Iron	8940	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Lead	8	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Magnesium	4540	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Manganese	220	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Nickel	9.6	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Potassium	1170	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Selenium	0.84	FALSE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Silver	0.2	FALSE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Sodium	274	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Thallium	0.96	FALSE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Vanadium	12.8	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Martin Spring Creek	TS056	2001-06-06	Unk	Sediment	Zinc	55.5	TRUE	mg/kg	80	20	-2278.969971	420555.0164	5387068.359	US Tributary	1.0273	0.1669	-4.1418	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Aluminum	4340	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Antimony	0.78	FALSE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Arsenic	4.5	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Barium	71.2	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Beryllium	0.11	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Calcium	82800	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Chromium	9.5	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Cobalt	2.7	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Copper	7.5	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Iron	11300	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Lead	4.7	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Magnesium	3740	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Manganese	172	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Nickel	9.5	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Potassium	607	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Selenium	1.1	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Silver	0.21	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Sodium	201	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Thallium	1	FALSE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Vanadium	12.8	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Pingston Creek	TS057	2001-06-06	Unk	Sediment	Zinc	34.4	TRUE	mg/kg	80	20	-1609.930054	420267.9731	5389352.128	US Tributary	1.535	0.1373	-3.9209	2
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Aluminum	1210	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Antimony	0.84	FALSE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Arsenic	1.1	FALSE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Barium	11	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Beryllium	0.07	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Calcium	910	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Chromium	1.6	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Cobalt	0.6	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Copper	1.7	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Iron	2040	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Lead	1.5	FALSE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Magnesium	569	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Manganese	64.4	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Nickel	1.2	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Potassium	298	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Selenium	0.95	FALSE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Silver	0.22	FALSE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Sodium	203	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Vanadium	3.4	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Nancy Creek	TS058	2001-06-06	Unk	Sediment	Zinc	7	TRUE	mg/kg	100	0	538.1199951	417960.8529	5389749.033	US Tributary	1.4425	-0.8022	0.0411	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Aluminum	4410	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Antimony	0.91	FALSE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Arsenic	1.4	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Barium	57.4	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Beryllium	0.22	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Calcium	22800	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Chromium	15.8	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Cobalt	2.5	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Copper	8.2	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Iron	8030	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Lead	6.5	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Magnesium	2780	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Manganese	134	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Nickel	7.4	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Potassium	767	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Selenium	0.92	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Silver	0.34	FALSE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Sodium	254	FALSE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Thallium	1	FALSE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Vanadium	13.3	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Three	TS059	2001-06-09	Unk	Sediment	Zinc	32.2	TRUE	mg/kg	70	20	787.9500122	417868.1338	5391239.626	US Tributary	1.7647	-0.139	-1.2926	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Aluminum	8190	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Antimony	1	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Arsenic	25.5	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Barium	75.4	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Beryllium	0.34	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Calcium	16700	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Chromium	31.4	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Cobalt	7	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Copper	15.6	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Iron	17300	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Lead	7.8	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Magnesium	5960	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Manganese	296	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Nickel	28.4	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Potassium	1020	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Selenium	0.69	FALSE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Silver	0.6	FALSE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Sodium	216	FALSE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Thallium	0.79	FALSE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Vanadium	28	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed tributary at T37N, R37E, Section 16, south	TS060	2001-06-06	Unk	Sediment	Zinc	55.6	TRUE	mg/kg	75	10		417858.8243	5394590.745	US Tributary	3.4932	0.0053	-2.0428	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Aluminum	8100	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Antimony	1.9	FALSE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Arsenic	30	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Barium	110	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Beryllium	0.45	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Cadmium	2.1	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Calcium	10800	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Chromium	16.1	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Cobalt	9.3	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Copper	29.9	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Iron	19500	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Lead	18	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Magnesium	4530	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Manganese	599	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Nickel	24.9	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Potassium	1390	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Selenium	0.76	FALSE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Silver	0.64	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Sodium	188	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Thallium	0.87	FALSE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Vanadium	25.7	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, One	TS061	2001-06-06	Unk	Sediment	Zinc	540	TRUE	mg/kg	90	5	2499.719971	419830.3081	5393605.937	US Tributary	0.3864	-0.8985	-0.7279	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Aluminum	2600	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Antimony	0.78	FALSE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Arsenic	2.5	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Barium	40.2	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Beryllium	0.12	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Calcium	3960	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Chromium	6.5	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Cobalt	1.7	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Copper	5	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Iron	5240	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Lead	5.1	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Magnesium	1680	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Manganese	129	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Nickel	4.9	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Potassium	532	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Selenium	0.88	FALSE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Silver	0.24	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Sodium	210	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Thallium	1	FALSE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Vanadium	9	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed, across from Marcus Island T37N, R37E, Sec	TS062	2001-06-06	Unk	Sediment	Zinc	20.2	TRUE	mg/kg	90	10	1970.939941	420793.8038	5393161.024	US Tributary	1.6048	-0.3585	-0.8466	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Aluminum	6790	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Antimony	0.61	FALSE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Arsenic	9.2	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Barium	73.4	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Beryllium	0.23	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Calcium	33400	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Chromium	17.6	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Cobalt	5.6	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Copper	22	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Iron	16500	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Lead	8.5	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Magnesium	7750	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Manganese	250	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Nickel	17.9	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Potassium	1160	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Selenium	0.68	FALSE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Silver	0.73	FALSE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Sodium	282	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Thallium	0.78	FALSE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Vanadium	30.7	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, Two	TS063	2001-06-08	Unk	Sediment	Zinc	50.5	TRUE	mg/kg	98	0	-256.8399963	423988.6654	5391769.185	US Tributary	2.7203	0.0704	-2.6074	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Aluminum	5210	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Antimony	0.79	FALSE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Arsenic	5.8	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Barium	156	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Beryllium	0.18	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Cadmium	0.39	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Calcium	174000	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Chromium	11.2	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Cobalt	4	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Copper	14.3	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Iron	9450	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Lead	28.7	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Magnesium	4080	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Manganese	293	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Nickel	11.3	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Potassium	824	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Selenium	0.89	FALSE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Silver	0.21	FALSE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Sodium	275	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Thallium	1	FALSE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Vanadium	11.4	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, Two	TS064	2001-06-08	Unk	Sediment	Zinc	52	TRUE	mg/kg	74.25742574	20.79207921	-710.4299927	425334.5654	5393608.545	US Tributary	-0.4731	-0.2881	-3.9431	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Aluminum	10300	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Antimony	1.5	FALSE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Arsenic	10.7	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Barium	124	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Beryllium	0.45	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Cadmium	0.88	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Calcium	12500	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Chromium	20.1	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Cobalt	7.9	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Copper	30	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Iron	18600	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Lead	65.5	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Magnesium	5340	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Manganese	421	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Nickel	19.2	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Potassium	2860	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Selenium	0.8	FALSE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Silver	0.86	FALSE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Sodium	265	FALSE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Thallium	0.92	FALSE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Vanadium	28.3	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T37N, R38E, Section, One	TS065	2001-06-08	Unk	Sediment	Zinc	123	TRUE	mg/kg	58.82352941	40.19607843	-757.3699951	425299.3574	5393907.475	US Tributary	0.902	-0.9012	-0.3372	3
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Aluminum	7350	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Antimony	2.5	FALSE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Arsenic	2.1	FALSE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Barium	167	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Beryllium	0.34	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Cadmium	0.5	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Calcium	106000	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Chromium	21.4	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Cobalt	4.6	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Copper	19.4	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Iron	13200	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Lead	20.6	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Magnesium	6700	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Manganese	167	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Mercury	0.13	FALSE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Nickel	15.1	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Potassium	1760	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Selenium	3.8	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Silver	0.56	FALSE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Sodium	562	FALSE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Thallium	2.1	FALSE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Vanadium	20.1	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Unnamed, spring drainage east of Evans Campground	TS066	2001-06-08	Unk	Sediment	Zinc	102	TRUE	mg/kg	40	60	-862.1099854	425319.7607	5394178.781	US Tributary	0.1332	-0.8634	-2.2727	2
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Aluminum	1900	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Antimony	0.81	FALSE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Arsenic	1.3	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Barium	11.5	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Beryllium	0.12	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Calcium	1790	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Chromium	3.2	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Cobalt	0.91	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Copper	1.7	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Iron	3370	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Lead	1.8	FALSE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Magnesium	1620	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Manganese	56.7	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Nickel	2.3	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Potassium	431	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Selenium	0.92	FALSE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Silver	0.22	FALSE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Sodium	222	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Vanadium	5.3	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Deadman Creek	TS067	2001-06-05	Unk	Sediment	Zinc	7.6	TRUE	mg/kg	90	0		417102.6296	5395525.26	US Tributary	2.5093	-1.3733	-0.3259	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Aluminum	7960	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Antimony	1	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Arsenic	14.9	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Barium	116	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Beryllium	0.42	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Calcium	21000	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Chromium	21.1	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Cobalt	7.9	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Copper	28.8	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Iron	25000	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Lead	14.2	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Magnesium	5170	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Manganese	452	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Nickel	24.1	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Potassium	1210	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Selenium	0.78	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Silver	0.77	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Sodium	164	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Thallium	0.82	FALSE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Vanadium	33	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 1	TS068	2001-06-06	Unk	Sediment	Zinc	78.5	TRUE	mg/kg	75	15		417674.2455	5395914.774	US Tributary	2.5514	0.6137	-1.7482	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Aluminum	6430	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Antimony	0.89	FALSE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Arsenic	4	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Barium	49.4	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Beryllium	0.38	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Cadmium	0.09	FALSE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Calcium	2280	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Chromium	13.6	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Cobalt	4	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Copper	8.8	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Iron	12900	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Lead	7.1	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Magnesium	3640	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Manganese	191	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Mercury	0.08	FALSE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Nickel	13.3	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Potassium	910	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Selenium	1	FALSE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Silver	0.47	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Sodium	219	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Thallium	1.2	FALSE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Vanadium	24.7	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed tributary to Kettle River Arm, draining po	TS069	2001-06-05	Unk	Sediment	Zinc	34.5	TRUE	mg/kg	95	0		416970.299	5396657.02	US Tributary	3.1063	-0.6786	0.613	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Aluminum	5530	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Antimony	1.5	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Arsenic	14.2	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Barium	73.4	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Beryllium	0.36	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Cadmium	0.66	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Calcium	3720	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Chromium	13.3	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Cobalt	5.8	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Copper	20.6	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Iron	18900	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Lead	62.2	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Magnesium	2710	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Manganese	230	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Mercury	0.08	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Nickel	14.8	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Potassium	1330	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Selenium	1.2	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Silver	0.63	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Sodium	200	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Thallium	0.93	FALSE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Vanadium	25.5	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, Two	TS070	2001-06-05	Unk	Sediment	Zinc	83.8	TRUE	mg/kg	90	10		417720.0332	5397028.805	US Tributary	0.7558	-1.1623	0.3918	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Aluminum	7360	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Antimony	1.6	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Arsenic	42.5	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Barium	153	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Beryllium	0.41	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Calcium	25400	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Chromium	21.5	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Cobalt	8.8	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Copper	49	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Iron	27400	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Lead	14.7	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Magnesium	4570	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Manganese	602	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Nickel	31.9	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Potassium	1230	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Selenium	1	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Silver	0.78	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Sodium	182	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Thallium	1.1	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Vanadium	35.1	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R37E, Section 9, One	TS071	2001-06-05	Unk	Sediment	Zinc	59.7	TRUE	mg/kg	85	15		417713.5735	5397284.673	US Tributary	2.4064	0.8716	-2.4841	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Aluminum	5870	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Antimony	1.7	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Arsenic	17.9	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Barium	106	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Beryllium	0.37	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Cadmium	0.12	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Calcium	47900	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Chromium	12.6	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Cobalt	7.4	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Copper	59	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Iron	22200	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Lead	11.2	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Magnesium	5210	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Manganese	495	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Nickel	21.9	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Potassium	812	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Selenium	0.71	FALSE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Silver	0.51	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Sodium	178	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Thallium	0.81	FALSE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Vanadium	24.8	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary, T37N, R38E, Section 4	TS072	2001-06-05	Unk	Sediment	Zinc	76	TRUE	mg/kg	90	0		417860.1621	5398846.021	US Tributary	1.4104	0.625	-2.7965	2
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Aluminum	4190	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Antimony	0.82	FALSE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Arsenic	2.5	FALSE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Barium	31.8	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Beryllium	0.25	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Calcium	12400	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Chromium	8.4	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Cobalt	2.4	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Copper	5.6	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Iron	6660	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Lead	3.4	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Magnesium	6860	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Manganese	140	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Nickel	6.3	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Potassium	741	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Selenium	0.95	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Silver	0.26	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Sodium	261	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Vanadium	10.2	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Matsen Creek	TS073	2001-06-05	Unk	Sediment	Zinc	16.8	TRUE	mg/kg	100	0		416787.5249	5399011.891	US Tributary	2.689	-0.968	-1.8352	3
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Aluminum	2840	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Antimony	0.79	FALSE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Arsenic	1.6	FALSE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Barium	33.6	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Beryllium	0.16	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Calcium	43700	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Chromium	6.2	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Cobalt	1.5	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Copper	3.5	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Iron	4650	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Lead	2.3	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Magnesium	4080	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Manganese	110	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Nickel	4.4	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Potassium	419	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Selenium	0.89	FALSE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Silver	0.21	FALSE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Sodium	242	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Thallium	1	FALSE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Vanadium	8.1	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Doyle Creek	TS074	2001-06-05	Unk	Sediment	Zinc	12.4	TRUE	mg/kg	75	10		416756.8355	5399278.082	US Tributary	1.834	-0.7959	-3.2394	2
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Aluminum	4530	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Antimony	0.87	FALSE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Arsenic	1.4	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Barium	42.6	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Beryllium	0.3	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Cadmium	0.09	FALSE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Calcium	2870	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Chromium	13.1	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Cobalt	3.1	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Copper	7.3	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Iron	9730	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Lead	3.9	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Magnesium	2860	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Manganese	151	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Nickel	8.7	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Potassium	714	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Selenium	0.99	FALSE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Silver	0.25	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Sodium	264	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Vanadium	20.8	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	Kettle River, One	TS075	2001-06-05	Unk	Sediment	Zinc	24.5	TRUE	mg/kg	100	0		417441.1967	5400055.691	US Tributary	2.9632	-0.326	0.7557	3
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Aluminum	7070	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Antimony	1	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Arsenic	3.2	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Barium	74.5	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Beryllium	0.32	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Cadmium	0.86	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Calcium	6540	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Chromium	14.4	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Cobalt	4.2	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Copper	11.2	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Iron	11600	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Lead	47.4	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Magnesium	3390	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Manganese	190	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Mercury	0.14	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Nickel	11.6	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Potassium	1710	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Selenium	0.69	FALSE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Silver	0.3	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Sodium	168	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Thallium	0.79	FALSE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Vanadium	19.7	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	China Creek	TS076	2001-05-21	Unk	Sediment	Zinc	78.1	TRUE	mg/kg	25	75	-380.5899963	423957.919	5396193.368	US Tributary	0.4792	-1.9626	0.4578	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Aluminum	7770	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Antimony	9.4	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Arsenic	25.4	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Barium	406	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Beryllium	0.3	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Cadmium	15.3	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Calcium	17500	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Chromium	12.5	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Cobalt	5.4	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Copper	33.5	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Iron	15300	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Lead	603	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Magnesium	4520	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Manganese	997	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Mercury	0.22	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Nickel	14.2	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Potassium	2020	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Selenium	1.6	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Silver	0.66	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Sodium	260	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Thallium	1.3	FALSE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Vanadium	23.1	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed tributary south of Snag Cove	TS077	2001-05-22	Unk	Sediment	Zinc	585	TRUE	mg/kg	33	67	353.1199951	422568.883	5397438.894	US Tributary	-3.6599	-2.0662	-1.1086	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Aluminum	9190	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Antimony	3.3	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Arsenic	54	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Barium	183	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Beryllium	0.45	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Cadmium	2.1	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Calcium	5390	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Chromium	12.4	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Cobalt	8.1	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Copper	31.4	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Iron	22700	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Lead	85.5	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Magnesium	3860	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Manganese	716	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Nickel	17.6	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Potassium	2820	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Selenium	1.5	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Silver	0.62	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Sodium	154	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Thallium	0.83	FALSE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Vanadium	27.3	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R37E, Section	TS078	2001-05-22	Unk	Sediment	Zinc	146	TRUE	mg/kg	50	35	320.3299866	421780.8305	5399533.937	US Tributary	0.227	-1.0228	-0.6032	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Aluminum	8750	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Antimony	3.4	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Arsenic	23.5	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Barium	128	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Beryllium	0.36	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Cadmium	2.5	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Calcium	24100	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Chromium	14.5	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Cobalt	6.4	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Copper	30.3	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Iron	17500	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Lead	107	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Magnesium	6170	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Manganese	659	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Mercury	0.09	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Nickel	17.8	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Potassium	1870	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Selenium	3	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Silver	0.55	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Sodium	222	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Thallium	1	FALSE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Vanadium	21.9	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary entering river at T38N	TS079	2001-05-22	Unk	Sediment	Zinc	202	TRUE	mg/kg	50	35	366.519989	421827.302	5400439.893	US Tributary	-0.6633	-1.4866	-1.5117	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Aluminum	6080	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Antimony	1.8	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Arsenic	9.8	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Barium	130	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Beryllium	0.21	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Cadmium	0.23	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Calcium	102000	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Chromium	16.7	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Cobalt	5.8	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Copper	15.5	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Iron	12700	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Lead	13.8	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Magnesium	5740	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Manganese	340	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Mercury	0.09	FALSE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Nickel	18.8	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Potassium	1070	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Selenium	2.2	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Silver	0.31	FALSE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Sodium	380	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Thallium	1.5	FALSE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Vanadium	17.9	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Unnamed tributary directly across from Bossburg, W	TS080	2001-05-22	Unk	Sediment	Zinc	79.4	TRUE	mg/kg	60	40	180.8500061	422391.6989	5401124.714	US Tributary	0.909	-0.1042	-3.4793	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Aluminum	5770	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Antimony	2.6	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Arsenic	3.1	FALSE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Barium	114	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Beryllium	0.23	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Cadmium	1.4	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Calcium	59900	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Chromium	13.8	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Cobalt	3.1	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Copper	27.9	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Iron	9180	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Lead	54.3	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Magnesium	6130	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Manganese	133	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Mercury	0.19	FALSE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Nickel	19.3	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Potassium	1540	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Selenium	5	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Silver	0.61	FALSE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Sodium	611	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Thallium	3	FALSE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Vanadium	14.9	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Dilly Lake ephemeral tributary	TS081	2001-05-22	Unk	Sediment	Zinc	117	TRUE	mg/kg	30	70	457.75	423558.329	5402515.89	US Tributary	-1.2793	-2.1728	-2.0432	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Aluminum	5650	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Antimony	2.4	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Arsenic	6.3	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Barium	152	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Beryllium	0.24	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Cadmium	2.4	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Calcium	82600	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Chromium	12	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Cobalt	3.9	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Copper	18.9	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Iron	9040	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Lead	79.4	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Magnesium	4970	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Manganese	289	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Mercury	0.1	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Nickel	11.7	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Potassium	1540	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Selenium	1.1	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Silver	0.25	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Sodium	237	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Thallium	0.98	FALSE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Vanadium	13.8	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary upstream of Dilly Lake	TS082	2001-05-22	Unk	Sediment	Zinc	185	TRUE	mg/kg	30	70	480.5899963	423720.3977	5402401.164	US Tributary	-1.7805	-1.7955	-2.6105	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Aluminum	6290	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Antimony	3.5	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Arsenic	4.1	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Barium	115	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Beryllium	0.25	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Cadmium	8.4	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Calcium	34300	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Chromium	14.1	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Cobalt	3.4	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Copper	41.3	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Iron	10700	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Lead	128	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Magnesium	5130	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Manganese	288	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Mercury	0.11	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Nickel	33.5	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Potassium	1460	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Selenium	3.8	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Silver	0.43	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Sodium	350	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Thallium	1.2	FALSE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Vanadium	28.9	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Four	TS083	2001-05-23	Unk	Sediment	Zinc	212	TRUE	mg/kg	40	60	-316.3800049	425881.1866	5403000.347	US Tributary	-2.0186	-2.8562	-0.8774	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Aluminum	3350	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Antimony	0.61	FALSE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Arsenic	1.8	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Barium	37.7	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Beryllium	0.16	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Cadmium	0.07	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Calcium	1780	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Chromium	6.8	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Cobalt	2.4	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Copper	5.5	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Iron	6340	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Lead	5.3	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Magnesium	1610	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Manganese	114	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Nickel	6	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Potassium	689	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Selenium	0.69	FALSE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Silver	0.16	FALSE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Sodium	141	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Thallium	0.79	FALSE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Vanadium	10.8	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Three	TS084	2001-05-23	Unk	Sediment	Zinc	27.4	TRUE	mg/kg	95	5	-379.0799866	426244.2017	5403424.526	US Tributary	2.222	-0.4023	0.4343	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Aluminum	3510	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Antimony	1.3	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Arsenic	6.2	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Barium	72.9	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Beryllium	0.13	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Cadmium	0.32	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Calcium	19500	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Chromium	10.2	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Cobalt	2.1	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Copper	10.1	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Iron	9260	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Lead	15.7	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Magnesium	3890	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Manganese	95.1	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Nickel	9.7	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Potassium	647	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Selenium	1.8	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Silver	0.24	FALSE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Sodium	244	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Thallium	1.2	FALSE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Vanadium	12.2	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at North Gorge Campgro	TS085	2001-05-23	Unk	Sediment	Zinc	103	TRUE	mg/kg	25	75	-583.6400146	426467.1399	5404125.007	US Tributary	-0.005	-1.2588	-2.4897	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Aluminum	1120	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Antimony	1.2	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Arsenic	2.3	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Barium	119	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Beryllium	0.04	FALSE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Cadmium	0.41	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Calcium	306000	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Chromium	1.5	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Cobalt	0.48	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Copper	4	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Iron	1440	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Lead	10.8	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Magnesium	2980	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Manganese	41.4	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Mercury	0.05	FALSE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Nickel	3.3	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Potassium	296	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Selenium	0.73	FALSE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Silver	0.17	FALSE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Sodium	205	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Thallium	0.84	FALSE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Vanadium	3.6	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, Two	TS086	2001-05-23	Unk	Sediment	Zinc	28.5	TRUE	mg/kg			181.1600037	425539.4771	5405364.039	US Tributary	-3.126	-2.3132	-7.249	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Aluminum	924	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Antimony	0.8	FALSE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Arsenic	2.6	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Barium	145	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Beryllium	0.05	FALSE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Cadmium	0.77	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Calcium	336000	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Chromium	1.7	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Cobalt	0.44	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Copper	6.3	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Iron	1030	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Lead	18.9	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Magnesium	3800	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Manganese	46.6	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Nickel	2.9	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Potassium	265	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Selenium	0.91	FALSE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Silver	0.21	FALSE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Sodium	276	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Thallium	1	FALSE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Vanadium	2.7	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of Lodgepol	TS087	2001-05-23	Unk	Sediment	Zinc	55.7	TRUE	mg/kg	60	30	270.4599915	425511.725	5406737.402	US Tributary	-4.4445	-2.6139	-7.288	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Aluminum	9000	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Antimony	2.5	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Arsenic	7	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Barium	126	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Beryllium	0.35	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Cadmium	5.1	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Calcium	42800	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Chromium	19.7	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Cobalt	5.2	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Copper	36	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Iron	11700	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Lead	21.8	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Magnesium	4100	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Manganese	238	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Mercury	0.16	FALSE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Nickel	35	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Potassium	1320	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Selenium	3.3	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Silver	0.7	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Sodium	723	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Vanadium	24.6	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Lodgepole Creek	TS088	2001-05-23	Unk	Sediment	Zinc	135	TRUE	mg/kg	60	40	436.5499878	425707.0316	5406933.165	US Tributary	-0.5688	-2.008	-1.2278	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Aluminum	5300	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Antimony	2.1	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Arsenic	5	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Barium	98	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Beryllium	0.19	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Cadmium	3.7	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Calcium	11400	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Chromium	7.6	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Cobalt	2.6	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Copper	15.9	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Iron	8440	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Lead	105	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Magnesium	2690	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Manganese	326	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Nickel	7.4	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Potassium	1140	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Selenium	1.4	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Silver	0.41	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Sodium	213	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Vanadium	13.3	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T38N, R38E, Section, One	TS089	2001-05-23	Unk	Sediment	Zinc	421	TRUE	mg/kg	89.10891089	9.900990099	-296.6199951	427007.3916	5407009.097	US Tributary	-2.3174	-1.7952	-0.5274	2
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Aluminum	5940	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Antimony	0.9	FALSE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Arsenic	9.7	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Barium	42.6	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Cadmium	0.09	FALSE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Calcium	4590	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Chromium	16.6	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Cobalt	4.7	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Copper	10.6	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Iron	12500	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Lead	7.2	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Magnesium	4240	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Manganese	192	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Nickel	25.9	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Potassium	771	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Selenium	1	FALSE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Silver	0.75	FALSE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Sodium	408	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Thallium	1.2	FALSE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Vanadium	29.3	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Fifteenmile Creek	TS090	2001-06-08	Unk	Sediment	Zinc	37	TRUE	mg/kg	84.15841584	10.89108911	202.0800018	427487.4084	5407932.053	US Tributary	3.2823	-0.5978	-0.6172	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Aluminum	8710	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Antimony	9.6	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Arsenic	12	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Barium	288	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Beryllium	0.37	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Cadmium	10.5	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Calcium	5510	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Chromium	12.3	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Cobalt	4.5	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Copper	15.1	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Iron	11400	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Lead	405	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Magnesium	2770	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Manganese	1210	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Mercury	0.08	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Nickel	10.8	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Potassium	1490	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Selenium	0.88	FALSE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Silver	0.72	FALSE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Sodium	273	FALSE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Thallium	1	FALSE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Vanadium	17.7	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at Flat Creek	TS091	2001-06-08	Unk	Sediment	Zinc	495	TRUE	mg/kg	69.30693069	30.69306931	505.4899902	428193.7322	5408170.465	US Tributary	-2.7302	-1.4327	0.4935	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Aluminum	4900	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Antimony	1.5	FALSE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Arsenic	5.2	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Barium	105	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Beryllium	0.17	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Cadmium	0.16	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Calcium	49100	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Chromium	14.9	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Cobalt	3.6	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Copper	11.5	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Iron	9410	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Lead	11.3	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Magnesium	3210	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Manganese	993	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Mercury	0.12	FALSE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Nickel	9.9	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Potassium	705	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Selenium	1.7	FALSE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Silver	0.49	FALSE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Sodium	523	FALSE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Thallium	1.9	FALSE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Vanadium	16.7	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Flat Creek	TS092	2001-06-08	Unk	Sediment	Zinc	42.2	TRUE	mg/kg	60	40	575.4400024	428211.5582	5408245.809	US Tributary	0.9071	0.9436	-2.4067	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Aluminum	7530	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Antimony	1.2	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Arsenic	7.7	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Barium	84.6	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Beryllium	0.31	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Cadmium	1.3	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Calcium	3030	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Chromium	16.8	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Cobalt	5.5	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Copper	15.5	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Iron	13500	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Lead	50.2	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Magnesium	3700	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Manganese	352	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Nickel	14.8	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Potassium	1910	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Selenium	0.82	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Silver	0.4	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Sodium	217	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Thallium	0.85	FALSE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Vanadium	24.9	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream of China Ba	TS093	2001-05-24	Unk	Sediment	Zinc	97	TRUE	mg/kg	50	50	636.6099854	430930.0804	5407940.151	US Tributary	0.968	-1.3321	0.8545	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Aluminum	8880	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Antimony	0.63	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Arsenic	7	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Barium	108	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Beryllium	0.34	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Cadmium	1.1	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Calcium	5440	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Chromium	19.9	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Cobalt	4.7	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Copper	13.7	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Iron	16000	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Lead	44	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Magnesium	4300	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Manganese	450	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Mercury	0.05	FALSE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Nickel	18.8	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Potassium	1460	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Selenium	0.71	FALSE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Silver	0.6	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Sodium	133	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Thallium	0.81	FALSE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Vanadium	23.7	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, Two	TS094	2001-05-24	Unk	Sediment	Zinc	109	TRUE	mg/kg	39.6039604	59.40594059	271.1300049	431982.3948	5410353.702	US Tributary	0.9011	-1.2574	0.2298	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Aluminum	1200	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Antimony	1.7	FALSE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Arsenic	2.2	FALSE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Barium	59.8	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Beryllium	0.11	FALSE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Cadmium	0.23	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Calcium	91500	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Chromium	3.7	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Cobalt	0.61	FALSE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Copper	3.6	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Iron	2600	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Lead	5.5	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Magnesium	1290	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Manganese	73	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Mercury	0.13	FALSE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Nickel	2.9	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Potassium	300	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Selenium	1.9	FALSE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Silver	0.44	FALSE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Sodium	317	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Vanadium	4.2	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Crown Creek	TS095	2001-05-24	Unk	Sediment	Zinc	16.2	TRUE	mg/kg	60	40	417.0299988	433113.8002	5411692.515	US Tributary	-1.3418	-1.1902	-4.4185	2
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Aluminum	4190	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Antimony	1.2	FALSE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Arsenic	4.8	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Barium	42.4	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Beryllium	0.21	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Cadmium	0.08	FALSE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Calcium	13700	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Chromium	11.3	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Cobalt	3.9	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Copper	10.2	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Iron	10900	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Lead	9.3	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Magnesium	3480	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Manganese	183	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Nickel	11.7	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Potassium	571	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Selenium	0.88	FALSE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Silver	0.51	FALSE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Sodium	237	FALSE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Thallium	1	FALSE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Vanadium	20	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3
2001 Expanded Site Investigation	Rattlesnake Creek	TS096	2001-06-08	Unk	Sediment	Zinc	48.4	TRUE	mg/kg	85	10	258.4899902	433902.2656	5412050.132	US Tributary	2.0567	-0.2501	-1.3761	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Aluminum	5740	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Antimony	1.2	FALSE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Arsenic	4.8	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Barium	148	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Beryllium	0.24	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Cadmium	1	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Calcium	121000	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Chromium	14.7	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Cobalt	4.3	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Copper	16.1	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Iron	9520	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Lead	22.2	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Magnesium	3410	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Manganese	564	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Nickel	16.7	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Potassium	1140	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Selenium	2.1	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Silver	0.39	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Sodium	291	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Thallium	1.6	FALSE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Vanadium	16.1	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary downstream from Moses	TS097	2001-05-24	Unk	Sediment	Zinc	95.2	TRUE	mg/kg	40	60	886.7199707	435988.1711	5414552.286	US Tributary	-0.4949	-0.5523	-2.7043	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Aluminum	7140	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Antimony	3.3	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Arsenic	8.6	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Barium	273	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Beryllium	0.32	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Cadmium	21.5	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Calcium	155000	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Chromium	21.3	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Cobalt	5.5	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Copper	42.5	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Iron	11700	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Lead	84.8	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Magnesium	4990	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Manganese	277	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Mercury	0.07	FALSE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Nickel	36.8	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Potassium	1340	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Selenium	28.4	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Silver	0.71	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Sodium	236	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Thallium	1.2	FALSE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Vanadium	21.1	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Moses Spring Creek	TS098	2001-05-24	Unk	Sediment	Zinc	403	TRUE	mg/kg			140.5399933	437106.589	5413978.629	US Tributary	-2.7391	-2.5093	-2.5545	2
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Aluminum	3090	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Antimony	0.83	FALSE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Arsenic	1.6	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Barium	41.5	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Beryllium	0.17	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Cadmium	0.17	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Calcium	6380	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Chromium	4.6	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Cobalt	1.6	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Copper	3.9	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Iron	6230	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Lead	13.2	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Magnesium	2790	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Manganese	113	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Nickel	4.3	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Potassium	701	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Selenium	0.95	FALSE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Silver	0.4	FALSE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Sodium	241	FALSE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Vanadium	11.9	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Onion Creek	TS099	2001-06-08	Unk	Sediment	Zinc	98.4	TRUE	mg/kg	97	3	-417.519989	437950.5573	5413703.418	US Tributary	0.4412	-1.1859	-0.7952	3
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Aluminum	11500	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Antimony	4.8	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Arsenic	15.9	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Barium	210	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Beryllium	0.6	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Cadmium	11.4	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Calcium	16900	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Chromium	23.1	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Cobalt	8	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Copper	42.2	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Iron	19300	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Lead	478	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Magnesium	5630	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Manganese	594	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Mercury	0.14	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Nickel	20.7	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Potassium	2540	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Selenium	0.92	FALSE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Silver	1.1	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Sodium	174	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Vanadium	31.7	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Unnamed ephemeral tributary at T39N, R39E, Section, One	TS100	2001-05-24	Unk	Sediment	Zinc	581	TRUE	mg/kg	75	25	630.7700195	438358.6608	5415597.471	US Tributary	-2.1586	-2.5231	0.0739	2
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Aluminum	6750	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Antimony	0.91	FALSE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Arsenic	3.8	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Barium	60.2	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Beryllium	0.26	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Cadmium	0.11	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Calcium	36200	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Chromium	15.7	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Cobalt	4.6	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Copper	12.7	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Iron	13900	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Lead	8.1	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Magnesium	4910	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Manganese	208	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Nickel	16	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Potassium	1380	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Selenium	0.92	FALSE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Silver	0.59	FALSE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Sodium	297	FALSE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Squaw Creek	TS101	2001-06-09	Unk	Sediment	Vanadium	26.6	TRUE	mg/kg	87	10	265.5599976	439386.8211	5416163.682	US Tributary	2.0423	-0.3233	-1.729	3
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Aluminum	11300	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Antimony	1.8	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Arsenic	7.7	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Barium	219	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Beryllium	0.6	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Cadmium	3.4	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Calcium	8070	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Chromium	23.6	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Cobalt	6.6	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Copper	51.8	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Iron	20200	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Lead	208	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Magnesium	6580	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Manganese	193	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Mercury	0.14	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Nickel	19.5	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Potassium	1290	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Selenium	1.4	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Silver	1	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Sodium	173	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Thallium	0.81	FALSE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Vanadium	33.8	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Unnamed tributary from northshore ponds	TS102	2001-05-24	Unk	Sediment	Zinc	379	TRUE	mg/kg	20	80	460.6199951	439867.8521	5416686.683	US Tributary	-1.4938	-2.4352	0.3947	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Aluminum	2300	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Antimony	1.4	FALSE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Arsenic	1.9	FALSE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Barium	198	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Beryllium	0.09	FALSE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Cadmium	0.86	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Calcium	185000	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Chromium	4.8	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Cobalt	1	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Copper	4.9	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Iron	3160	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Lead	10.8	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Magnesium	2910	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Manganese	301	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Nickel	4.1	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Potassium	571	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Selenium	1.6	FALSE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Silver	0.37	FALSE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Sodium	327	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Thallium	1.8	FALSE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Vanadium	5.2	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Fivemile Creek	TS103	2001-05-24	Unk	Sediment	Zinc	31.4	TRUE	mg/kg	85	15	-843.1099854	441399.8114	5416523.141	US Tributary	-2.1972	-0.8153	-4.9421	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Aluminum	6480	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Antimony	1.1	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Arsenic	3.7	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Barium	121	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Beryllium	0.31	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Cadmium	1.8	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Calcium	110000	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Chromium	20.6	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Cobalt	4.5	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Copper	18.3	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Iron	10800	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Lead	29.3	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Magnesium	4210	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Manganese	223	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Nickel	17.4	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Potassium	1450	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Selenium	1.7	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Silver	0.47	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Sodium	294	FALSE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Thallium	1.1	FALSE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Vanadium	22.5	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Bear Creek	TS104	2001-06-09	Unk	Sediment	Zinc	148	TRUE	mg/kg	69.30693069	29.7029703	252.6999969	440539.9076	5417607.318	US Tributary	-0.4302	-1.4584	-2.0996	2
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Aluminum	3480	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Antimony	0.74	FALSE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Arsenic	2.6	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Barium	28.4	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Beryllium	0.13	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Cadmium	0.07	FALSE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Calcium	3330	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Chromium	7.4	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Cobalt	2.1	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Copper	6.7	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Iron	6850	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Lead	3.3	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Magnesium	2470	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Manganese	123	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Mercury	0.06	FALSE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Nickel	8.3	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Potassium	596	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Selenium	0.84	FALSE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Silver	0.37	FALSE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Sodium	255	FALSE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Thallium	0.96	FALSE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Vanadium	12.4	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Deep Creek	TS105	2001-06-08	Unk	Sediment	Zinc	21.2	TRUE	mg/kg	95	0	-359.730011	444803.1247	5420199.216	US Tributary	2.6166	-0.5043	-0.5186	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Aluminum	9470	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Antimony	0.62	FALSE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Arsenic	7.7	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Barium	104	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Beryllium	0.69	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Cadmium	0.06	FALSE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Calcium	6120	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Chromium	31.8	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Cobalt	7	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Copper	21.4	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Iron	18800	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Lead	23.7	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Magnesium	6030	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Manganese	348	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Mercury	0.08	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Nickel	24.6	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Potassium	1290	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Selenium	0.7	FALSE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Silver	0.69	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Sodium	345	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Thallium	0.8	FALSE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Vanadium	39.5	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Big Sheep Creek	TS106	2001-05-31	Unk	Sediment	Zinc	78.8	TRUE	mg/kg	50	40	598.2399902	443951.7967	5420982.658	US Tributary	2.8285	-0.0502	0.1587	3
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Aluminum	8840	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Antimony	0.81	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Arsenic	7	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Barium	155	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Beryllium	0.48	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Cadmium	0.54	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Calcium	10500	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Chromium	26.1	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Cobalt	6.7	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Copper	26.8	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Iron	18700	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Lead	73.8	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Magnesium	7400	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Manganese	291	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Mercury	0.18	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Nickel	20.2	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Potassium	1270	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Selenium	1.8	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Silver	0.74	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Sodium	260	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Thallium	0.9	FALSE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Vanadium	32.3	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Quartz Creek	TS107	2001-05-31	Unk	Sediment	Zinc	238	TRUE	mg/kg	50	40	543.8800049	444019.7626	5420961.798	US Tributary	0.1382	-1.3475	-0.2021	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Aluminum	5890	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Antimony	2.4	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Arsenic	4.5	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Barium	102	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Beryllium	0.3	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Cadmium	4.8	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Calcium	5630	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Chromium	14.4	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Cobalt	5.3	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Copper	22.3	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Iron	14300	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Lead	151	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Magnesium	3120	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Manganese	139	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Mercury	0.09	FALSE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Nickel	12.1	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Potassium	1540	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Selenium	2.4	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Silver	0.67	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Thallium	1.4	FALSE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Vanadium	24.9	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Goodeve Creek, One	TS108	2001-05-31	Unk	Sediment	Zinc	220	TRUE	mg/kg	50	50	305.7900085	446240.1159	5421374.966	US Tributary	-1.2903	-2.4909	0.8671	2
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Aluminum	8130	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Antimony	0.89	FALSE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Arsenic	4.9	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Barium	127	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Beryllium	0.19	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Cadmium	0.79	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Calcium	15600	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Chromium	13.8	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Cobalt	8.5	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Copper	26.7	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Iron	19100	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Lead	16.5	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Magnesium	4290	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Manganese	358	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Mercury	0.07	FALSE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Nickel	29.8	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Potassium	694	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Selenium	1.6	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Silver	0.79	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Sodium	139	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Thallium	1.2	FALSE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Vanadium	18.2	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Scriver Creek	TS109	2001-06-01	Unk	Sediment	Zinc	134	TRUE	mg/kg	55	40	-131.6999969	448496.2906	5422175.272	US Tributary	0.4814	-0.3963	-0.9366	3
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Aluminum	6850	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Antimony	14.3	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Arsenic	21.4	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Barium	51.4	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Beryllium	0.26	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Cadmium	2.8	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Calcium	2480	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Chromium	12.6	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Cobalt	2.2	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Copper	22.7	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Iron	10900	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Lead	589	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Magnesium	3480	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Manganese	176	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Mercury	0.19	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Nickel	8	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Potassium	1660	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Selenium	0.81	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Silver	1.1	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Sodium	326	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Thallium	0.88	FALSE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Vanadium	17.8	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Expanded Site Investigation	Unnamed Tributary NE of Gaging Station	TS110	2001-06-01	Unk	Sediment	Zinc	279	TRUE	mg/kg	85	14	-172.9199982	453180.289	5424936.487	US Tributary	-1.8669	-3.2194	0.7011	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Aluminum	8700	FALSE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Antimony	0.07	FALSE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Arsenic	3.4	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Barium	84.4	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Cadmium	0.15	FALSE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Calcium	3400	FALSE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Chromium	32.6	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Cobalt	6.3	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Copper	15.66	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Iron	17100	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Lead	9.21	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Magnesium	4300	FALSE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Manganese	250	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		CVAA	Sediment	Mercury	0.0005	FALSE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Nickel	15.8	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Potassium	1400	FALSE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Silver	0.025	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Sodium	120	FALSE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Thallium	0.09	FALSE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Vanadium	45	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-001 Upper Top. Cr.	GSC-COJ-01-001 Upper Top. Cr.		IMS	Sediment	Zinc	43.2	TRUE	mg/kg				439793	5440307	Canada Tributary	3.6337	0.6504	0.6322	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Aluminum	6800	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Antimony	0.35	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Arsenic	5.9	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Barium	89	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Cadmium	0.57	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Calcium	3800	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Chromium	16	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Cobalt	5.9	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Copper	17.6	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Iron	16400	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Lead	19	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		CVAA	Sediment	Magnesium	3900	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Manganese	385	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		CVAA	Sediment	Mercury	0.03	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Nickel	10.6	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Potassium	1500	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Silver	0.05	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Sodium	300	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Thallium	0.08	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Vanadium	38	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-002 Upper Tr. Cr.	GSC-COJ-01-002 Upper Tr. Cr.		IMS	Sediment	Zinc	80	TRUE	mg/kg				443456	5435505	Canada Tributary	1.7417	-0.0004	0.2058	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Aluminum	5300	FALSE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Antimony	0.07	FALSE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Arsenic	5.9	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Barium	60.9	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Cadmium	0.24	FALSE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Calcium	3300	FALSE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Chromium	10.5	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Cobalt	5.9	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Copper	37.94	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Iron	13400	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Lead	9.69	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Magnesium	4100	FALSE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Manganese	257	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		CVAA	Sediment	Mercury	0.0008	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Nickel	9.6	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Potassium	1100	FALSE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Selenium	0.1	FALSE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Silver	0.063	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Sodium	140	FALSE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Thallium	0.06	FALSE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Vanadium	28	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-003 Lower Tr. Cr.	GSC-COJ-01-003 Lower Tr. Cr.		IMS	Sediment	Zinc	67	TRUE	mg/kg				445033	5437297	Canada Tributary	1.9772	0.4163	0.0653	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Aluminum	13000	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Antimony	0.2	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Arsenic	3.3	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Barium	95.6	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Beryllium	0.3	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Cadmium	0.52	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Calcium	5400	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Chromium	46	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Cobalt	10.2	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Copper	13.6	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Iron	25300	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Lead	9.4	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		CVAA	Sediment	Magnesium	10100	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Manganese	480	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		CVAA	Sediment	Mercury	0.02	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Nickel	34	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Potassium	900	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Selenium	0.2	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Silver	0.06	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Sodium	300	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Thallium	0.1	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Vanadium	58	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-004 Upper Bear Cr.	GSC-COJ-01-004 Upper Bear Cr.		IMS	Sediment	Zinc	88	TRUE	mg/kg				454810	5443575	Canada Tributary	3.4946	0.0103	0.6876	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Aluminum	10300	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Antimony	0.3	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Arsenic	3	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Barium	70	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Beryllium	0.2	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Cadmium	0.39	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Calcium	4400	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Chromium	32	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Cobalt	7.8	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Copper	21.2	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Iron	20700	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Lead	12.4	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		CVAA	Sediment	Magnesium	7400	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Manganese	305	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		CVAA	Sediment	Mercury	0.01	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Nickel	20	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Potassium	800	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Selenium	0.2	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Silver	0.06	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Sodium	300	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Thallium	0.06	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Vanadium	47	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-005 Mid. Bear Cr.	GSC-COJ-01-005 Mid. Bear Cr.		IMS	Sediment	Zinc	64	TRUE	mg/kg				454328	5439905	Canada Tributary	3.1157	0.2749	0.6121	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Aluminum	9500	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Antimony	0.35	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Arsenic	2.2	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Barium	65.8	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Beryllium	0.2	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Cadmium	0.57	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Calcium	3800	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Chromium	26	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Cobalt	7.3	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Copper	9.8	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Iron	20200	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Lead	17	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		CVAA	Sediment	Magnesium	7600	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Manganese	320	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		CVAA	Sediment	Mercury	0.02	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Nickel	17.8	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Potassium	900	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Selenium	0.2	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Silver	0.05	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Thallium	0.08	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Vanadium	47	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-006 Low. Bear Cr.	GSC-COJ-01-006 Low. Bear Cr.		IMS	Sediment	Zinc	80	TRUE	mg/kg				453460	5438272	Canada Tributary	2.765	-0.4902	0.9144	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Aluminum	6600	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Antimony	0.25	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Arsenic	2.9	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Barium	57.6	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Cadmium	0.2	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Calcium	4000	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Chromium	24	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Cobalt	5.1	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Copper	9.4	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Iron	15300	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Lead	5.8	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		CVAA	Sediment	Magnesium	4400	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Manganese	230	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Nickel	11	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Potassium	800	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Selenium	0.2	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Silver	0.05	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Thallium	0.06	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Vanadium	38	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-007 Low. Champ. Cr.	GSC-COJ-01-007 Low. Champ. Cr.		IMS	Sediment	Zinc	40	TRUE	mg/kg				450754	5451629	Canada Tributary	3.5187	0.4176	0.126	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Aluminum	8200	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Antimony	0.05	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Arsenic	3.9	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Barium	80.2	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Cadmium	0.14	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Calcium	3400	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Chromium	15	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Cobalt	6.8	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Copper	13.6	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Iron	19500	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Lead	4	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		CVAA	Sediment	Magnesium	5600	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Manganese	330	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Nickel	8.4	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Potassium	1200	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Silver	0.03	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Thallium	0.08	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Vanadium	51	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-008 Mid. Champ. Cr.	GSC-COJ-01-008 Mid. Champ. Cr.		IMS	Sediment	Zinc	44	TRUE	mg/kg				456209	5454121	Canada Tributary	3.8151	0.948	-0.1996	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Aluminum	6700	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Antimony	0.05	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Arsenic	3.6	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Barium	57	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Beryllium	0.05	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Cadmium	0.1	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Calcium	2800	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Chromium	11	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Cobalt	5.2	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Copper	17	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Iron	16200	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Lead	3.2	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		CVAA	Sediment	Magnesium	4200	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Manganese	280	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Nickel	7.6	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Potassium	800	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Silver	0.03	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Thallium	0.06	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Vanadium	39	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-009 Upper. Champ. Cr.	GSC-COJ-01-009 Upper. Champ. Cr.		IMS	Sediment	Zinc	38	TRUE	mg/kg				459147	5454472	Canada Tributary	3.4884	1.2832	-0.5868	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Aluminum	5900	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Antimony	0.3	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Arsenic	2	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Barium	56	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Cadmium	0.25	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Calcium	2900	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Chromium	12	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Cobalt	4.1	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Copper	45.8	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Iron	11700	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Lead	10	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		CVAA	Sediment	Magnesium	3000	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Manganese	215	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Nickel	7.8	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Potassium	900	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Silver	0.04	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Sodium	300	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Thallium	0.06	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Vanadium	23	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-010 Upper Cas. Cr.	GSC-COJ-01-010 Upper Cas. Cr.		IMS	Sediment	Zinc	44	TRUE	mg/kg				452395	5434821	Canada Tributary	1.8556	0.6875	0.701	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Aluminum	3400	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Antimony	0.3	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Arsenic	1.2	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Barium	35.4	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Beryllium	0.1	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Cadmium	0.24	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Calcium	1500	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Chromium	7	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Cobalt	2.2	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Copper	5	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Iron	7100	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Lead	9.2	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		CVAA	Sediment	Magnesium	1700	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Manganese	115	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		CVAA	Sediment	Mercury	0.01	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Nickel	5.4	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Potassium	500	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Silver	0.04	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Sodium	100	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Thallium	0.04	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Vanadium	14	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-011 Low. Cas. Cr.	GSC-COJ-01-011 Low. Cas. Cr.		IMS	Sediment	Zinc	30	TRUE	mg/kg				453990	5435231	Canada Tributary	1.8887	-0.4251	0.7783	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Aluminum	5500	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Antimony	0.25	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Arsenic	1.9	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Barium	43.2	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Cadmium	0.46	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Calcium	3300	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Chromium	11	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Cobalt	3.9	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Copper	8.6	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Iron	10900	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Lead	23	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		CVAA	Sediment	Magnesium	3000	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Manganese	165	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Nickel	8.4	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Potassium	900	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Silver	0.07	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Sodium	300	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Thallium	0.06	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Vanadium	23	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-012 Upper Shep. Cr.	GSC-COJ-01-012 Upper Shep. Cr.		IMS	Sediment	Zinc	58	TRUE	mg/kg				454256	4529793	Canada Tributary	1.8106	-0.3431	0.7407	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Aluminum	4800	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Antimony	0.7	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Arsenic	19.6	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Barium	30.4	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Cadmium	0.51	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Calcium	2400	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Chromium	24	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Cobalt	4.3	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Copper	8.4	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Iron	19200	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Lead	26.6	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		CVAA	Sediment	Magnesium	2800	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Manganese	185	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		CVAA	Sediment	Mercury	0.01	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Nickel	9.2	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Potassium	600	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Silver	0.06	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Thallium	0.08	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Vanadium	46	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-013 Lower Shep. Cr.	GSC-COJ-01-013 Lower Shep. Cr.		IMS	Sediment	Zinc	74	TRUE	mg/kg				455046	5429034	Canada Tributary	2.6223	-0.4431	0.2638	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Aluminum	6100	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Antimony	0.2	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Arsenic	1.9	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Barium	84.2	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Beryllium	0.3	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Cadmium	0.3	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Calcium	3400	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Chromium	32	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Cobalt	4.9	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Copper	8.2	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Iron	17500	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Lead	10.6	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		CVAA	Sediment	Magnesium	3100	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Manganese	230	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		CVAA	Sediment	Mercury	0.01	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Nickel	11.6	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Potassium	1100	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Silver	0.09	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Thallium	0.08	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Vanadium	45	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-014 Upper Han. Cr.	GSC-COJ-01-014 Upper Han. Cr.		IMS	Sediment	Zinc	42	TRUE	mg/kg				438481	5444262	Canada Tributary	3.1868	0.3284	1.1539	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Aluminum	8900	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Antimony	0.15	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Arsenic	3.4	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Barium	129.2	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Beryllium	0.3	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Cadmium	0.4	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Calcium	4500	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Chromium	30	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Cobalt	6.8	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Copper	11.8	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Iron	18000	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Lead	11.4	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		CVAA	Sediment	Magnesium	5400	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Manganese	240	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Nickel	18	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Potassium	1400	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Silver	0.07	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Sodium	300	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Thallium	0.1	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Vanadium	41	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-015 Upper Murp. Cr.	GSC-COJ-01-015 Upper Murp. Cr.		IMS	Sediment	Zinc	60	TRUE	mg/kg				438369	5448526	Canada Tributary	3.0046	0.1386	0.3518	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Aluminum	10100	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Antimony	0.15	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Arsenic	1.7	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Barium	165.8	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Beryllium	0.25	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Cadmium	0.63	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Calcium	11100	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Chromium	26	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Cobalt	8	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Copper	23	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Iron	16900	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Lead	7.8	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		CVAA	Sediment	Magnesium	3900	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Manganese	695	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		CVAA	Sediment	Mercury	0.03	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Nickel	47	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Potassium	700	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Selenium	2	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Silver	0.2	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Sodium	400	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Thallium	0.18	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Vanadium	37	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-016 Upper Blue. Cr.	GSC-COJ-01-016 Upper Blue. Cr.		IMS	Sediment	Zinc	142	TRUE	mg/kg				436050	5460441	Canada Tributary	1.666	0.6663	0.3956	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Aluminum	7000	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Antimony	0.05	FALSE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Arsenic	1.2	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Barium	112	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Beryllium	0.25	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Cadmium	0.19	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Calcium	4600	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Chromium	20	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Cobalt	4.9	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Copper	7	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Iron	17700	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Lead	6.6	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		CVAA	Sediment	Magnesium	3700	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Manganese	345	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Nickel	11.2	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Potassium	1000	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Selenium	0.2	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Silver	0.05	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Thallium	0.1	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Vanadium	37	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-017 Mid. Blue. Cr.	GSC-COJ-01-017 Mid. Blue. Cr.		IMS	Sediment	Zinc	42	TRUE	mg/kg				439001	5460703	Canada Tributary	3.1621	0.9155	0.5595	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Aluminum	5100	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Antimony	0.2	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Arsenic	1.1	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Barium	92.2	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Beryllium	0.2	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Cadmium	0.26	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Calcium	4300	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Chromium	20	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Cobalt	4.4	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Copper	7	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Iron	15600	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Lead	11.8	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		CVAA	Sediment	Magnesium	3600	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Manganese	300	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Nickel	14.4	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Potassium	800	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Silver	0.06	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Thallium	0.08	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Vanadium	32	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-018 Lower Blue. Cr.	GSC-COJ-01-018 Lower Blue. Cr.		IMS	Sediment	Zinc	40	TRUE	mg/kg				451475	5454964	Canada Tributary	2.6246	0.5247	0.6745	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Aluminum	4000	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Antimony	0.15	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Arsenic	0.7	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Barium	82.6	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Cadmium	0.22	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Calcium	3500	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Chromium	21	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Cobalt	3.8	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Copper	6.6	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Iron	14400	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Lead	6.4	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		CVAA	Sediment	Magnesium	3900	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Manganese	180	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		CVAA	Sediment	Mercury	0.01	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Nickel	16.8	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Potassium	1200	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Silver	0.05	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Thallium	0.06	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Vanadium	31	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-019 Lower China Cr.	GSC-COJ-01-019 Lower China Cr.		IMS	Sediment	Zinc	32	TRUE	mg/kg				449750	5452748	Canada Tributary	3.1211	0.2577	0.7351	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Aluminum	5500	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Antimony	0.15	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Arsenic	1.4	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Barium	68.8	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Beryllium	0.1	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Cadmium	0.2	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Calcium	2600	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Chromium	12	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Cobalt	3.9	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Copper	9	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Iron	12500	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Lead	9.4	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		CVAA	Sediment	Magnesium	2900	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Manganese	185	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Nickel	9	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Potassium	1000	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Silver	0.07	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Thallium	0.08	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Vanadium	29	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-020 Upper Sul. Cr.	GSC-COJ-01-020 Upper Sul. Cr.		IMS	Sediment	Zinc	36	TRUE	mg/kg				445798	5450364	Canada Tributary	2.6143	0.3791	0.4954	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Aluminum	7700	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Antimony	0.45	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Arsenic	2.8	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Barium	103.8	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Cadmium	0.39	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Calcium	2900	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Chromium	22	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Cobalt	6	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Copper	17.8	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Iron	17000	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Lead	11.8	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		CVAA	Sediment	Magnesium	4700	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Manganese	205	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		CVAA	Sediment	Mercury	0.01	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Nickel	13.8	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Potassium	1800	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Selenium	0.2	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Silver	0.07	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Sodium	200	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Thallium	0.14	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Vanadium	41	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-021 Lower Sul. Cr.	GSC-COJ-01-021 Lower Sul. Cr.		IMS	Sediment	Zinc	80	TRUE	mg/kg				447670	5448511	Canada Tributary	2.611	0.0648	0.5615	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Aluminum	10200	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Antimony	8.35	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Arsenic	12.2	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Barium	103.8	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Beryllium	0.35	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Cadmium	2.77	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Calcium	3700	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Chromium	23	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Cobalt	5.8	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Copper	32.2	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Iron	16800	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Lead	277	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		CVAA	Sediment	Magnesium	5100	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Manganese	315	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		CVAA	Sediment	Mercury	0.11	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Nickel	16.4	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Potassium	1700	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Selenium	0.2	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Silver	0.37	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Sodium	300	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Thallium	0.38	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Vanadium	34	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-022 Lower Ryan Cr.	GSC-COJ-01-022 Lower Ryan Cr.		IMS	Sediment	Zinc	318	TRUE	mg/kg				449931	5438007	Canada Tributary	-0.7387	-2.1452	1.0602	2
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Aluminum	7300	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Antimony	0.15	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Arsenic	2.3	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Barium	113.4	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Cadmium	0.32	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Calcium	3800	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Chromium	24	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Cobalt	5.4	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Copper	12.4	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Iron	18000	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Lead	8.8	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		CVAA	Sediment	Magnesium	4300	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Manganese	200	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		CVAA	Sediment	Mercury	0.01	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Nickel	12	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Potassium	1800	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Selenium	0.2	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Silver	0.07	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Sodium	300	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Thallium	0.1	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Vanadium	47	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-023 Lower Mur. Cr.	GSC-COJ-01-023 Lower Mur. Cr.		IMS	Sediment	Zinc	40	TRUE	mg/kg				446166	5445360	Canada Tributary	3.1068	0.4127	0.3152	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Aluminum	5800	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Antimony	0.2	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Arsenic	2	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Barium	82.4	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Cadmium	0.35	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Calcium	2600	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Chromium	16	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Cobalt	3.1	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Copper	6.8	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Iron	11600	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Lead	9.6	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		CVAA	Sediment	Magnesium	3100	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Manganese	135	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Nickel	8	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Potassium	1300	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Silver	0.06	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Sodium	300	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Thallium	0.06	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Vanadium	28	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-024 Mid. Hanna Cr.	GSC-COJ-01-024 Mid. Hanna Cr.		IMS	Sediment	Zinc	50	TRUE	mg/kg				445461	5441973	Canada Tributary	2.4238	-0.1304	0.4393	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Aluminum	5700	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Antimony	0.25	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Arsenic	3	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Barium	78.2	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Cadmium	0.39	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Calcium	3100	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Chromium	24	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Cobalt	6.1	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Copper	8.8	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Iron	15200	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Lead	10.6	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		CVAA	Sediment	Magnesium	3400	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Manganese	150	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Nickel	11	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Potassium	1300	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Silver	0.07	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Sodium	300	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Thallium	0.08	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Vanadium	39	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-025 Lower Hanna Cr.	GSC-COJ-01-025 Lower Hanna Cr.		IMS	Sediment	Zinc	58	TRUE	mg/kg				445840	5442051	Canada Tributary	2.8902	0.1681	0.596	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Aluminum	10400	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Antimony	0.2	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Arsenic	3.3	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Barium	146	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Cadmium	0.26	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Calcium	4600	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Chromium	29	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Cobalt	8.6	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Copper	14.2	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Iron	20500	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Lead	6.8	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		CVAA	Sediment	Magnesium	7100	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Manganese	255	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		CVAA	Sediment	Mercury	0.01	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Nickel	24.4	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Potassium	2400	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Silver	0.06	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Sodium	400	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Thallium	0.12	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Vanadium	53	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-026 Mid. Top. Cr.	GSC-COJ-01-026 Mid. Top. Cr.		IMS	Sediment	Zinc	50	TRUE	mg/kg				444118	5440413	Canada Tributary	3.8132	0.5231	-0.0887	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Aluminum	10400	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Antimony	0.2	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Arsenic	3	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Barium	163.6	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Cadmium	0.56	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Calcium	4700	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Chromium	34	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Cobalt	8.2	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Copper	14.4	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Iron	19500	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Lead	9.8	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		CVAA	Sediment	Magnesium	7500	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Manganese	260	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		CVAA	Sediment	Mercury	0.01	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Nickel	29.6	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Potassium	2400	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Selenium	0.2	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Silver	0.05	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Sodium	400	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Thallium	0.14	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Vanadium	50	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-027 Lower Top. Cr.	GSC-COJ-01-027 Lower Top. Cr.		IMS	Sediment	Zinc	70	TRUE	mg/kg				445332	5440261	Canada Tributary	3.2023	0.108	0.1211	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Aluminum	3900	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Antimony	0.05	FALSE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Arsenic	0.6	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Barium	58.2	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Beryllium	0.15	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Cadmium	0.1	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Calcium	3100	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Chromium	10	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Cobalt	3	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Copper	6	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Iron	12100	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Lead	4.6	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		CVAA	Sediment	Magnesium	2400	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Manganese	240	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		CVAA	Sediment	Mercury	0.01	FALSE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Nickel	7	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Potassium	500	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Selenium	0.2	FALSE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Silver	0.07	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Sodium	200	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Thallium	0.02	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Vanadium	21	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2001 Trail Area Stream Sediment Background	GSC-COJ-01-028 MD2 BLU CR	GSC-COJ-01-028 MD2 BLU CR		IMS	Sediment	Zinc	26	TRUE	mg/kg				448043	5458363	Canada Tributary	2.7828	1.1654	0.6683	3
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Aluminum	6970	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Antimony	0.52	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Arsenic	3.9	FALSE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Barium	101.5	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Beryllium	0.34	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Cadmium	1.45	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Calcium	7770	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Chromium	13.5	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Cobalt	5.35	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Copper	14.35	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Iron	13000	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Lead	49.1	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Magnesium	4485	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Manganese	176.5	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Mercury	0.0695	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Nickel	12.6	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Potassium	1030.5	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Selenium	2.3	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Silver	1	FALSE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Vanadium	20.05	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM708B1	05144404	2005-04-07	Unk	Sediment	Zinc	182	TRUE	mg/kg	64.24815763	35.30175798	-403.6900024	421523	5390882	OU 2 Transitional CSM Unit	-0.1947	-2.0597	-0.0043	2
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Aluminum	19650	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Antimony	44.45	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Arsenic	28.7	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Barium	1860	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Cadmium	2.75	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Calcium	64100	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Chromium	129.5	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Cobalt	56.6	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Copper	2355	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Iron	194000	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Lead	267.5	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Magnesium	5790	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Manganese	3705	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Mercury	0.013	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Nickel	12.55	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Potassium	3890	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Silver	1.1	FALSE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Sodium	1960	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Thallium	1.12	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Vanadium	41.45	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM744X2	05144408	2005-04-08	Unk	Sediment	Zinc	15050	TRUE	mg/kg	92.15	7.85	102.9300003	453657	5427390	OU 1 North	-2.5644	5.2322	0.4219	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Aluminum	18750	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Antimony	46.8	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Arsenic	24.9	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Barium	1695	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Cadmium	1.2	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Calcium	63850	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Chromium	122	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Cobalt	47.95	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Copper	2215	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Iron	192000	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Lead	241	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Magnesium	7325	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Manganese	3640	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Mercury	0.02	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Nickel	12.25	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Potassium	3645	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Selenium	3.7	FALSE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Silver	0.93	FALSE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Sodium	1750	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Vanadium	38.7	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM742B2	05144409	2005-04-09	Unk	Sediment	Zinc	15600	TRUE	mg/kg	97.2	2.8	-83.5899963	452594	5424441	OU 1 North	-2.4012	5.2277	0.1576	1
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Aluminum	6735	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Arsenic	8.4	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Barium	858	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Beryllium	0.61	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Cadmium	4.35	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Calcium	32800	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Chromium	17.2	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Cobalt	4.7	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Copper	39.15	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Iron	20050	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Lead	235	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Magnesium	19800	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Manganese	340	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Mercury	0.77	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Nickel	16.05	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Potassium	1220	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Silver	1.3	FALSE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Sodium	115.5	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Vanadium	28.15	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM704X3	05144424	2005-04-08	Unk	Sediment	Zinc	819.5	TRUE	mg/kg	44.94856557	55.05143443	419.2399902	418246	5388523	OU 2 Transitional CSM Unit	-3.7021	-2.9846	-2.2582	2
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Aluminum	5995	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Antimony	15.5	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Arsenic	8.45	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Barium	362	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Beryllium	0.57	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Cadmium	2.15	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Calcium	19250	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Chromium	25.95	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Cobalt	11.45	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Copper	320	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Iron	32050	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Lead	129.5	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Magnesium	9400	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Manganese	640.5	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Mercury	0.275	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Nickel	11.65	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Potassium	1160	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Selenium	4.7	FALSE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Silver	1.3	FALSE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Sodium	273.5	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Thallium	3.4	FALSE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Vanadium	21.1	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM726X1	05144448	2005-04-08	Unk	Sediment	Zinc	2255	TRUE	mg/kg	85.4	14.6	-108.1800003	433827	5411622	OU 1 South	-3.213	0.0556	-0.2588	1
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Aluminum	13500	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Antimony	1.85	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Arsenic	8.6	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Barium	398.5	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Cadmium	3.45	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Calcium	14050	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Chromium	31.95	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Cobalt	11.1	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Copper	97.65	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Iron	27800	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Lead	151	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Magnesium	11600	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Manganese	443	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Mercury	0.32	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Nickel	25	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Potassium	1910	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Selenium	7.6	FALSE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Silver	2.2	FALSE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Sodium	213.5	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Thallium	5.4	FALSE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Vanadium	41.55	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM692X2	05144455	2005-04-09	Unk	Sediment	Zinc	632	TRUE	mg/kg	5.894002263	93.87023765	-42.4099998	413079	5374583	OU 2 Upper Laucustrine CSM Unit	-1.5488	-1.9457	0.2533	2
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Aluminum	6950	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Antimony	17.2	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Arsenic	10.2	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Barium	580.5	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Beryllium	0.59	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Cadmium	4.75	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Calcium	46600	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Chromium	34.6	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Cobalt	14.65	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Copper	508	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Iron	51750	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Lead	226.5	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Magnesium	16800	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Manganese	1000.5	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Mercury	0.13	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Nickel	12.2	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Potassium	1340	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Selenium	3.8	FALSE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Silver	1.1	FALSE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Sodium	365.5	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Vanadium	23.75	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735B3R	05154412	2005-04-11	Unk	Sediment	Zinc	4060	TRUE	mg/kg	89.37010894	9.428341295	-208.9100037	443492	5419070	OU 1 North	-3.8251	0.6514	-0.9979	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Aluminum	11450	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Antimony	31.55	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Arsenic	16.65	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Barium	1044.5	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Beryllium	0.91	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Cadmium	2.5	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Calcium	43950	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Chromium	65	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Cobalt	26	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Copper	1210	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Iron	105950	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Lead	228.5	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Magnesium	9630	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Manganese	1830	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Mercury	0.1175	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Nickel	13.05	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Potassium	2350	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Silver	0.97	FALSE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Sodium	1130	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Vanadium	29.55	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM735BSF	05154414	2005-04-11	Unk	Sediment	Zinc	8945	TRUE	mg/kg	87.9711921	11.5783876	-182.8899994	443443	5419080	OU 1 North	-3.4085	2.8378	-0.0821	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Aluminum	9185	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Antimony	26.55	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Arsenic	13.35	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Barium	796	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Beryllium	0.785	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Cadmium	2.95	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Calcium	32400	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Chromium	60.15	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Cobalt	29	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Copper	988	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Iron	80950	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Lead	255.5	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Magnesium	8025	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Manganese	1530	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Mercury	0.12	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Nickel	12.1	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Potassium	1730	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Silver	1.1	FALSE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Sodium	876	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Thallium	1.2	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Vanadium	26.3	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM739X1	05154427	2005-04-11	Unk	Sediment	Zinc	6880	TRUE	mg/kg	94.25	5.75	-99.5999985	448823	5422285	OU 1 North	-3.4856	2.5544	0.3429	1
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Aluminum	4460	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Antimony	0.45	FALSE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Arsenic	1.65	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Barium	39.5	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Beryllium	0.31	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Cadmium	0.155	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Calcium	8615	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Chromium	9.65	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Cobalt	3.35	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Copper	9.45	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Iron	9430	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Lead	6.8	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Magnesium	2820	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Manganese	138.5	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Mercury	0.004	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Nickel	7.55	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Potassium	532.5	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Silver	0.9	FALSE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Sodium	98.1	FALSE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Vanadium	19.35	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM700B3L	05154439	2005-04-12	Unk	Sediment	Zinc	36.75	TRUE	mg/kg	76.75	2	-392.5499878	417107	5382694	OU 2 Transitional CSM Unit	2.5689	0.0351	-0.4177	3
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Aluminum	9535	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Antimony	5.35	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Arsenic	12.4	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Barium	301	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Beryllium	0.62	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Cadmium	2.1	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Calcium	23450	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Chromium	20.7	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Cobalt	10	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Copper	336	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Iron	49900	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Lead	214.5	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Magnesium	7395	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Manganese	983	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Mercury	0.136	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Nickel	7.8	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Potassium	2035	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Silver	0.26	FALSE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Sodium	1103	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Vanadium	26.85	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM723X4	05154445	2005-04-12	Unk	Sediment	Zinc	3905	TRUE	mg/kg	95.39019693	4.509691969	423.980011	431487	5407920	OU 1 South	-3.0751	1.1053	-0.0641	1
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Aluminum	6165	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Antimony	0.65	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Arsenic	2.4	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Barium	64.9	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Beryllium	0.535	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Cadmium	0.1195	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Calcium	4850	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Chromium	12.5	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Cobalt	5	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Copper	11.6	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Iron	10950	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Lead	4.85	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Magnesium	3695	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Manganese	239.5	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Nickel	11.3	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Potassium	987.5	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Silver	0.88	FALSE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Sodium	158.5	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Vanadium	20	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM679X3	05154449	2005-04-12	Unk	Sediment	Zinc	33.95	TRUE	mg/kg	59.17099708	35.85579734	743	411884	5356535	OU 2 Upper Laucustrine CSM Unit	2.6034	-0.5831	0.3273	3
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Aluminum	13550	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Antimony	2.15	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Arsenic	2.1	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Barium	239	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Beryllium	1.25	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Cadmium	8.1	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Calcium	5910	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Chromium	25.6	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Cobalt	8.95	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Copper	34.7	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Iron	19050	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Lead	227.5	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Magnesium	5375	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Manganese	266.5	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Mercury	0.835	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Nickel	20.05	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Potassium	2325	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Silver	1.5	FALSE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Sodium	252.5	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Thallium	3.8	FALSE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Vanadium	30.2	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM697B3	05154474	2005-04-13	Unk	Sediment	Zinc	714	TRUE	mg/kg	14.1718527	85.66855992	891.5300293	415202	5379122	OU 2 Upper Laucustrine CSM Unit	-2.1147	-3.0438	2.4632	2
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Aluminum	8370	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Antimony	1.45	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Arsenic	3.25	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Barium	75.7	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Beryllium	0.585	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Cadmium	0.175	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Calcium	2860	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Chromium	13.95	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Cobalt	6.1	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Copper	12.2	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Iron	14150	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Lead	6.5	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Magnesium	3575	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Manganese	247	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Mercury	0.011	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Nickel	12.45	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Potassium	1145	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Silver	1.1	FALSE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Sodium	111.35	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Vanadium	23.85	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM673B1	05154479	2005-04-16	Unk	Sediment	Zinc	46.15	TRUE	mg/kg	62.9917314	29.5414683	404.7600098	414643	5347371	OU 2 Upper Laucustrine CSM Unit	3.2653	0.0022	0.7636	3
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Aluminum	7395	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Antimony	17.1	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Arsenic	15.2	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Barium	613.5	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Beryllium	0.655	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Cadmium	1.95	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Calcium	26250	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Chromium	42.2	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Cobalt	21.2	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Copper	614.5	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Iron	52900	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Lead	139.5	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Magnesium	8930	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Manganese	1110	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Mercury	0.1085	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Nickel	11	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Potassium	1425	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Silver	1.1	FALSE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Sodium	602	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Vanadium	24.35	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM735X1	05154488	2005-04-14	Unk	Sediment	Zinc	3965	TRUE	mg/kg	88.82394593	11.17605407	-81.9700012	444109	5419839	OU 1 North	-2.9779	1.9317	-0.3031	1
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Aluminum	13000	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Antimony	3.3	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Arsenic	10.2	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Barium	182	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Beryllium	1.09	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Cadmium	4.7	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Calcium	5415	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Chromium	33.8	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Cobalt	10.3	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Copper	57.35	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Iron	22800	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Lead	225.5	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Magnesium	6975	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Manganese	566	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Mercury	1.4	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Nickel	24.3	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Potassium	2120	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Silver	2.1	FALSE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Sodium	281	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Thallium	5.3	FALSE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Vanadium	36.6	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM670X2	05154498	2005-04-14	Unk	Sediment	Zinc	452	TRUE	mg/kg	30.2417208	69.7582792	-24.2600002	413906	5342826	OU 2 Upper Laucustrine CSM Unit	-1.4042	-2.6926	1.7653	2
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Aluminum	14150	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Antimony	0.94	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Arsenic	6.3	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Barium	149	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Beryllium	1.05	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Cadmium	1.375	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Calcium	3170	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Chromium	18.35	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Cobalt	9.1	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Copper	21.1	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Iron	19100	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Lead	24.9	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Magnesium	4320	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Manganese	323	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Mercury	0.0455	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Nickel	16	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Potassium	2975	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Silver	1.1	FALSE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Sodium	146.5	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Vanadium	27.65	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM642B3L	05154510	2005-04-15	Unk	Sediment	Zinc	148	TRUE	mg/kg	65.78263671	33.38598716	-461.3900146	399204	5309193	OU 2 Middle Laucustrine CSM Unit	1.5223	-1.2765	1.4166	3
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Aluminum	9600	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Antimony	2.55	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Arsenic	8.15	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Barium	441	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Beryllium	0.88	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Cadmium	5.4	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Calcium	16750	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Chromium	24.2	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Cobalt	8.2	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Copper	98.85	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Iron	22350	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Lead	253.5	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Magnesium	11950	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Manganese	297.5	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Mercury	1.15	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Nickel	19.7	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Potassium	1655	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Silver	1.4	FALSE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Sodium	163	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Thallium	3.6	FALSE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Vanadium	29.95	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM715X1	05154518	2005-04-15	Unk	Sediment	Zinc	920.5	TRUE	mg/kg	34.59382167	65.00281087	-210.0599976	423079	5401117	OU 1 South	-3.2052	-2.943	-0.2429	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Aluminum	7430	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Antimony	0.975	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Arsenic	2	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Barium	65.75	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Beryllium	0.6	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Cadmium	2.65	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Calcium	2905	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Chromium	17.6	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Cobalt	5.45	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Copper	14.65	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Iron	12600	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Lead	51.05	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Magnesium	3745	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Manganese	141	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Mercury	0.066	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Nickel	13.45	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Potassium	1230	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Silver	1	FALSE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Sodium	97.5	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Vanadium	20.95	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM675B1	05154526	2005-04-16	Unk	Sediment	Zinc	223.5	TRUE	mg/kg	54.03709738	38.57580879	-631.3300171	414966	5349919	OU 2 Upper Laucustrine CSM Unit	0.0975	-2.5195	2.0816	2
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Aluminum	11200	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Antimony	34.5	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Arsenic	18.7	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Barium	708	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Beryllium	0.765	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Cadmium	0.615	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Calcium	26250	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Chromium	56.15	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Cobalt	27.15	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Copper	897	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Iron	84500	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Lead	168	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Magnesium	5335	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Manganese	1745	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Mercury	0.0335	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Nickel	12.25	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Potassium	2095	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Silver	0.97	FALSE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Sodium	936.5	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Vanadium	37.2	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM732X2	05154530	2005-04-16	Unk	Sediment	Zinc	6575	TRUE	mg/kg	89.35	1.85	196.0200043	440606	5417359	OU 1 North	-2.0121	3.7058	0.2478	1
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Aluminum	11450	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Antimony	1.9	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Arsenic	4.6	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Barium	121.5	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Beryllium	0.695	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Cadmium	1.25	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Calcium	2590	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Chromium	14.15	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Cobalt	5.05	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Copper	14.35	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Iron	14650	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Lead	88.85	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Magnesium	2970	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Manganese	206.5	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Mercury	0.11	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Nickel	10.85	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Potassium	925	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Silver	1.1	FALSE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Sodium	124.5	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Vanadium	23.85	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM710X3	05154540	2005-04-16	Unk	Sediment	Zinc	185	TRUE	mg/kg	84.83909124	15.0589387	545.5200195	423945	5393578	OU 1 South	-0.2023	-1.9923	1.5527	2
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Aluminum	6235	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Antimony	0.66	FALSE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Arsenic	6.45	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Barium	38.4	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Beryllium	0.465	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Cadmium	0.47	FALSE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Calcium	2540	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Chromium	18.75	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Cobalt	6.15	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Copper	11.75	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Iron	15900	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Lead	6.7	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Magnesium	3885	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Manganese	196.5	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Mercury	0.096	FALSE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Nickel	17	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Potassium	686	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Selenium	3.3	FALSE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Silver	0.93	FALSE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Sodium	70.3	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Vanadium	21.85	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM664X3	05164426	2005-04-19	Unk	Sediment	Zinc	36.9	TRUE	mg/kg	95.48938937	2.70986782	882.5100098	410549	5334109	OU 2 Upper Laucustrine CSM Unit	2.7429	-1.5946	0.88	3
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Aluminum	14050	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Antimony	1.5	FALSE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Arsenic	5.6	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Barium	175.5	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Beryllium	1.35	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Cadmium	1.5	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Calcium	8515	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Chromium	34.7	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Cobalt	11.65	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Copper	64.1	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Iron	27200	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Lead	99.05	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Magnesium	8280	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Manganese	562.5	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Mercury	0.335	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Nickel	28.35	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Potassium	2160	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Selenium	5.6	FALSE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Silver	1.6	FALSE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Sodium	250.5	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Thallium	4	FALSE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Vanadium	39.85	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM661X2	05164427	2005-04-19	Unk	Sediment	Zinc	278.5	TRUE	mg/kg	1.392596031	98.60740397	49.0800018	407633	5331992	OU 2 Upper Laucustrine CSM Unit	0.0444	-1.5807	1.4219	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Aluminum	3780	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Antimony	0.62	FALSE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Arsenic	0.81	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Barium	33.55	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Beryllium	0.375	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Cadmium	0.55	FALSE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Calcium	1940	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Chromium	8.05	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Cobalt	2.85	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Copper	6.05	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Iron	7505	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Lead	4.15	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Magnesium	2175	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Manganese	112.5	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Mercury	0.12	FALSE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Nickel	6.55	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Potassium	515.5	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Selenium	3.9	FALSE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Silver	1.1	FALSE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Sodium	80.2	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Vanadium	14	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM692A1(X1)	05164438	2005-04-20	Unk	Sediment	Zinc	32	TRUE	mg/kg	94.74144938	3.307697117	-1224.810059	414717	5373502	OU 2 Upper Laucustrine CSM Unit	1.5316	-1.8787	1.6196	2
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Aluminum	9870	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Antimony	7.6	FALSE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Arsenic	2.4	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Barium	83.5	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Beryllium	0.78	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Cadmium	0.26	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Calcium	8360	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Chromium	23.8	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Cobalt	9.3	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Copper	17.9	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Iron	21700	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Lead	11.7	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Magnesium	5730	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Manganese	343	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Mercury	0.022	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Nickel	25.2	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Potassium	1300	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Selenium	3.6	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Silver	1.3	FALSE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Sodium	167	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Vanadium	27	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM680A1(X1)	05164451	2005-04-21	Unk	Sediment	Zinc	76.6	TRUE	mg/kg	71.88823721	24.24242424	-1281.25	413588	5358273	OU 2 Upper Laucustrine CSM Unit	2.8862	-0.0297	0.7318	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Aluminum	9890	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Antimony	1.3	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Arsenic	3.4	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Barium	115	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Beryllium	0.98	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Cadmium	0.18	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Calcium	11350	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Chromium	24.4	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Cobalt	9.7	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Copper	21.1	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Iron	21200	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Lead	9.85	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Magnesium	6490	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Manganese	477.5	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Mercury	0.012	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Nickel	21.8	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Potassium	1920	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Selenium	4	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Silver	1.3	FALSE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Sodium	271	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Vanadium	34.1	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM676A1(X3)	05164458	2005-04-21	Unk	Sediment	Zinc	60.05	TRUE	mg/kg	41.96617336	58.03382664	834.8400269	411994	5351688	OU 2 Upper Laucustrine CSM Unit	3.3647	0.6532	0.1602	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Aluminum	7480	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Antimony	8.4	FALSE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Arsenic	3.4	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Barium	96.75	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Beryllium	0.555	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Cadmium	0.415	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Calcium	31400	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Chromium	22.2	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Cobalt	6.75	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Copper	15.05	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Iron	15100	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Lead	12.45	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Magnesium	5145	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Manganese	483	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Mercury	0.035	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Nickel	14.45	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Potassium	880	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Selenium	4.7	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Silver	1.4	FALSE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Sodium	176	FALSE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Thallium	3.5	FALSE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Vanadium	29.05	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM721R1	05164477	2005-04-22	Unk	Sediment	Zinc	54.75	TRUE	mg/kg	57.22994933	35.30088621	579.5999756	428210	5408247	US Tributary	1.856	-0.1139	-0.9328	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Aluminum	13500	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Arsenic	5.1	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Barium	148	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Cadmium	0.405	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Calcium	5085	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Chromium	30.55	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Cobalt	12.3	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Copper	23.1	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Iron	23500	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Lead	19.1	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Magnesium	7090	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Manganese	568	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Mercury	0.018	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Nickel	27.35	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Potassium	2565	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Selenium	3.4	FALSE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Sodium	296.5	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Thallium	3	FALSE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Vanadium	38.5	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM658A1(X3)	05164484	2005-04-22	Unk	Sediment	Zinc	88.75	TRUE	mg/kg	50.77147623	48.91576314	1156.550049	406995	5326590	OU 2 Upper Laucustrine CSM Unit	3.0625	0.1027	1.1317	3
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Aluminum	6890	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Antimony	9.7	FALSE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Arsenic	4.6	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Barium	267	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Beryllium	0.825	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Cadmium	2.85	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Calcium	8675	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Chromium	20.35	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Cobalt	7.25	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Copper	64.95	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Iron	17600	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Lead	148	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Magnesium	7010	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Manganese	273.5	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Mercury	0.55	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Nickel	16	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Potassium	1275	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Selenium	5.8	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Silver	1.6	FALSE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Sodium	124	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Thallium	4.1	FALSE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Vanadium	28.05	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM713A1(X3)	05164488	2005-04-23	Unk	Sediment	Zinc	538.5	TRUE	mg/kg	64.74023359	33.54812727	265.8999939	422351	5398124	OU 1 South	-2.3189	-2.4465	0.6143	2
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Aluminum	8990	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Antimony	3.75	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Arsenic	7.6	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Barium	233.5	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Beryllium	0.71	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Cadmium	3.35	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Calcium	26750	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Chromium	19	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Cobalt	13.15	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Copper	314.5	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Iron	39900	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Lead	512.5	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Magnesium	7485	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Manganese	822	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Mercury	0.051	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Nickel	10.2	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Potassium	2245	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Selenium	4.55	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Silver	1.2	FALSE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Sodium	1047	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Thallium	3	FALSE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Vanadium	30.5	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM692C1	05164498	2005-04-23	Unk	Sediment	Zinc	3795	TRUE	mg/kg	90.95548284	8.644273007	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.1329	0.6787	0.4842	1
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Aluminum	5900	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Antimony	5.7	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Arsenic	7.85	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Barium	337.5	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Beryllium	0.59	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Cadmium	3	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Calcium	25150	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Chromium	18.85	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Cobalt	7.3	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Copper	130	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Iron	24000	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Lead	169.5	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Magnesium	13250	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Manganese	366	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Mercury	0.325	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Nickel	12.35	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Potassium	1012.5	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Selenium	6.35	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Silver	1.2	FALSE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Sodium	218	FALSE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Vanadium	23.6	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM727A1(X1)	05164508	2005-04-23	Unk	Sediment	Zinc	1280	TRUE	mg/kg	80.44366813	19.10524588	-174.0399933	435252	5412314	OU 1 South	-3.2901	-1.4933	-1.0732	2
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Aluminum	11350	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Arsenic	8.95	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Barium	120	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Beryllium	1	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Cadmium	0.325	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Calcium	4120	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Chromium	21.7	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Cobalt	13.95	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Copper	17.6	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Iron	20950	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Lead	18.35	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Magnesium	5320	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Manganese	498.5	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Mercury	0.02	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Nickel	22.7	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Potassium	2240	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Selenium	3.1	FALSE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Sodium	168	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Vanadium	29.95	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM640A1(X3)	05174414	2005-04-26	Unk	Sediment	Zinc	90.15	TRUE	mg/kg	62.01485423	36.72808791	596.8499756	398722	5307109	OU 2 Middle Laucustrine CSM Unit	3.0331	-0.0296	0.8353	3
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Aluminum	31350	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Arsenic	12.65	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Barium	371	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Beryllium	2.5	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Cadmium	5.05	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Calcium	6240	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Chromium	43.4	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Cobalt	18.45	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Copper	85.1	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Iron	44250	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Lead	140.5	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Magnesium	10650	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Manganese	2215	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Mercury	0.425	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Nickel	37.2	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Selenium	5	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Silver	2.7	FALSE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Sodium	533	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Thallium	6.8	FALSE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Vanadium	59.75	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM603X2	05174431	2005-04-28	Unk	Sediment	Zinc	670.5	TRUE	mg/kg	0.941634363	99.05836564	-33.6699982	360623	5312927	OU 2 Lower Laucustrine CSM Unit	-0.1089	-1.1306	2.1524	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Aluminum	19200	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Arsenic	5.4	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Barium	207	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Beryllium	1.9	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Cadmium	2.05	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Calcium	4850	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Chromium	26.3	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Cobalt	15.2	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Copper	39.25	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Iron	31700	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Lead	68.7	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Magnesium	6965	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Manganese	846	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Mercury	0.2	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Nickel	23.5	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Potassium	2810	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Selenium	3.2	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Sodium	318.5	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Thallium	5.4	FALSE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Vanadium	48.95	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM625X2	05174442	2005-04-28	Unk	Sediment	Zinc	301	TRUE	mg/kg	2.963365395	96.91316105	2.5599999	385027	5303855	OU 2 Lower Laucustrine CSM Unit	0.7008	-1.1111	2.1865	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Aluminum	10100	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Arsenic	9.1	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Barium	316	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Beryllium	0.955	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Cadmium	4.95	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Calcium	20500	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Chromium	26.55	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Cobalt	9.05	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Copper	35.05	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Iron	22150	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Lead	238	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Magnesium	10900	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Manganese	405	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Mercury	0.65	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Nickel	23.55	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Potassium	1655	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Selenium	3.75	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Sodium	237.5	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Vanadium	32.65	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM661C1	05174447	2005-04-29	Unk	Sediment	Zinc	551	TRUE	mg/kg	17.65365018	82.34634982	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-2.0514	-2.7053	-0.2561	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Aluminum	20100	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Arsenic	10	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Barium	219	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Beryllium	1.7	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Cadmium	4.5	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Calcium	5445	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Chromium	33.65	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Cobalt	14.2	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Copper	57.15	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Iron	30950	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Lead	116	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Magnesium	8270	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Manganese	884.5	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Mercury	0.345	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Nickel	27.5	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Potassium	3130	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Selenium	5.2	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Silver	2.3	FALSE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Sodium	229	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Thallium	5.7	FALSE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Vanadium	42.65	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM639T1	05174456	2005-04-29	Unk	Sediment	Zinc	597.5	TRUE	mg/kg	1.107665042	98.89233496	-467.4899902	400157	5305351	OU 2 Middle Laucustrine CSM Unit	-0.2802	-1.8966	1.929	2
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Aluminum	8020	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Antimony	6.6	FALSE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Arsenic	2.45	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Barium	79.9	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Beryllium	0.765	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Cadmium	0.105	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Calcium	2275	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Chromium	12	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Cobalt	5.4	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Copper	9.2	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Iron	14050	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Lead	7.6	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Magnesium	3505	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Manganese	201	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Mercury	0.014	FALSE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Nickel	9.3	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Potassium	1400	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Selenium	1.265	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Silver	1.1	FALSE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Sodium	108	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Vanadium	20.8	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM637C1	05174462	2005-04-29	Unk	Sediment	Zinc	45.2	TRUE	mg/kg	82.10341612	17.89658388	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.2787	-0.0475	1.0149	3
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Aluminum	21000	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Arsenic	7.6	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Barium	264	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Beryllium	1.7	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Cadmium	5.45	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Calcium	4475	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Chromium	34.15	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Cobalt	13.25	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Copper	68.15	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Iron	30000	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Lead	154.5	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Magnesium	7310	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Manganese	1174.5	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Mercury	0.8	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Nickel	27.25	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Potassium	3310	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Selenium	6.45	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Silver	3.7	FALSE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Sodium	331	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Thallium	9.2	FALSE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Vanadium	42.2	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM605X5	05174477	2005-04-29	Unk	Sediment	Zinc	607.5	TRUE	mg/kg	0.474796233	99.20867294	46.8300018	363128	5312045	OU 2 Lower Laucustrine CSM Unit	-0.8768	-1.8915	2.4632	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Aluminum	15450	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Arsenic	10.15	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Barium	195	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Cadmium	5.9	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Calcium	8040	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Chromium	30.15	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Cobalt	11.9	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Copper	39.8	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Iron	24200	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Lead	146	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Magnesium	7865	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Manganese	565	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Mercury	0.72	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Nickel	24.9	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Potassium	2610	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Selenium	3	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Silver	1.6	FALSE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Sodium	276.5	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Thallium	4	FALSE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Vanadium	35.9	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM637X4	05174479	2005-04-30	Unk	Sediment	Zinc	560	TRUE	mg/kg	14.80350658	85.19649342	9.2200003	398864	5302467	OU 2 Middle Laucustrine CSM Unit	-0.9757	-2.6137	1.395	2
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Aluminum	15700	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Antimony	8	FALSE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Arsenic	4.15	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Barium	163.5	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Cadmium	0.395	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Calcium	3655	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Chromium	15.1	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Cobalt	8.1	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Copper	19.45	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Iron	17050	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Lead	17.65	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Magnesium	4790	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Manganese	440.5	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Mercury	0.0405	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Nickel	13.05	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Potassium	3365	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Selenium	1.95	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Silver	1.4	FALSE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Sodium	524.5	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Vanadium	26.6	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM605C1	05184414	2005-05-03	Unk	Sediment	Zinc	70.65	TRUE	mg/kg	27.47252747	72.52747253	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	2.3277	-0.1274	1.2122	3
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Aluminum	11050	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Antimony	7.4	FALSE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Arsenic	1.08	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Barium	149.5	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Beryllium	1.05	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Cadmium	4.45	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Calcium	5930	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Chromium	18.95	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Cobalt	6.3	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Copper	27.8	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Iron	14050	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Lead	45.1	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Magnesium	4390	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Manganese	179.5	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Mercury	0.125	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Nickel	11.1	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Potassium	1925	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Selenium	2.1	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Silver	1.3	FALSE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Sodium	198	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Vanadium	27.3	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM628X3	05184418	2005-05-02	Unk	Sediment	Zinc	286.5	TRUE	mg/kg	56.99222025	41.0843423	193.8999939	390367	5304495	OU 2 Middle Laucustrine CSM Unit	-0.6742	-2.2464	2.1041	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Aluminum	4350	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Antimony	0.47	FALSE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Arsenic	5	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Barium	102	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Beryllium	0.28	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Cadmium	1.1	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Calcium	6090	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Chromium	15.1	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Cobalt	4.3	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Copper	22.9	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Iron	16000	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Lead	68.8	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Magnesium	4140	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Manganese	171	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Mercury	0.068	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Nickel	9.6	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Potassium	624	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Selenium	1.1	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Silver	1	FALSE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Sodium	88.5	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Vanadium	27.9	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B1	MJ4ET3	2005-04-06	Unk	Sediment	Zinc	352	TRUE	mg/kg	88.4	10.7	-388.3500061	426263	5404129	OU 1 South	-0.9287	-1.5434	0.0484	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Aluminum	7880	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Antimony	3.6	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Arsenic	9.6	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Barium	315	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Beryllium	0.53	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Cadmium	4.2	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Calcium	15400	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Chromium	22.8	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Cobalt	8.5	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Copper	132	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Iron	23500	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Lead	223	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Magnesium	10200	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Manganese	270	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Mercury	0.4	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Nickel	17.2	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Potassium	1220	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Selenium	2.7	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Silver	1.4	FALSE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Sodium	134	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Thallium	3.4	FALSE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Vanadium	27.4	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B2	MJ4ET4	2005-04-06	Unk	Sediment	Zinc	1060	TRUE	mg/kg	54.04970966	45.95029034	-328.2000122	426211	5404166	OU 1 South	-3.0293	-2.2384	-0.4294	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Aluminum	7060	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Antimony	6.4	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Arsenic	10.7	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Barium	407	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Beryllium	0.48	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Cadmium	4.2	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Calcium	24700	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Cobalt	9.8	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Copper	216	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Iron	29500	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Lead	216	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Magnesium	13900	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Manganese	434	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Mercury	0.37	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Nickel	15.3	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Potassium	1190	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Selenium	3	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Silver	1.2	FALSE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Sodium	170	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Vanadium	26.9	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM718B3	MJ4ET5	2005-04-06	Unk	Sediment	Zinc	1700	TRUE	mg/kg	72.4	27.6	-141.4400024	426028	5404204	OU 1 South	-3.4759	-1.4278	-0.9697	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Aluminum	9890	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Antimony	2	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Arsenic	8.6	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Barium	264	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Beryllium	0.56	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Cadmium	5.6	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Calcium	6920	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Chromium	19.9	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Cobalt	7.1	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Copper	57.8	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Iron	23400	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Lead	202	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Magnesium	5390	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Manganese	246	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Mercury	0.47	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Nickel	16.8	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Potassium	1020	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Selenium	4.3	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Silver	1.3	FALSE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Sodium	134	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Vanadium	28.5	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B2	MJ4ET8	2005-04-07	Unk	Sediment	Zinc	620	TRUE	mg/kg	50.05461494	49.94538506	-364.3599854	421513	5390920	OU 2 Transitional CSM Unit	-2.5519	-2.5309	0.5871	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Aluminum	8600	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Antimony	8.1	FALSE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Arsenic	6.5	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Barium	258	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Beryllium	0.48	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Cadmium	7.3	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Calcium	7520	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Chromium	19.7	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Cobalt	6.8	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Copper	50.3	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Iron	17600	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Lead	297	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Magnesium	6070	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Manganese	214	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Mercury	0.81	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Nickel	16.3	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Potassium	1010	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Selenium	2.3	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Silver	1.4	FALSE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Sodium	86.4	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Thallium	3.4	FALSE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Vanadium	24.4	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM708B3	MJ4ET9	2005-04-07	Unk	Sediment	Zinc	915	TRUE	mg/kg	34	61.6	-326.7000122	421498	5390955	OU 2 Transitional CSM Unit	-3.3054	-3.2889	0.5791	2
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Aluminum	12100	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Antimony	53.9	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Arsenic	20.3	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Barium	1180	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Cadmium	0.8	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Calcium	39700	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Chromium	84.5	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Cobalt	47.2	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Copper	1420	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Iron	112000	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Lead	195	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Magnesium	5480	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Manganese	2380	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Mercury	0.06	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Nickel	11.3	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Potassium	2270	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Selenium	23.2	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Silver	1.2	FALSE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Sodium	1250	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Vanadium	31.2	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM728X1	MJ4EW3	2005-04-07	Unk	Sediment	Zinc	9180	TRUE	mg/kg	91.8518519	8.1481481	-97.6500015	436607	5413600	OU 1 North	-2.5825	4.5705	0.17	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Aluminum	18600	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Antimony	47.7	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Arsenic	27.3	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Barium	1750	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Cadmium	1.4	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Calcium	66900	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Chromium	128	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Cobalt	51	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Copper	2350	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Iron	211000	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Lead	266	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Magnesium	8290	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Manganese	3680	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Mercury	0.65	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Nickel	12.4	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Potassium	3750	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Selenium	3.4	FALSE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Silver	0.97	FALSE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Sodium	1840	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Vanadium	39.8	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM742B1	MJ4EW4	2005-04-09	Unk	Sediment	Zinc	16900	TRUE	mg/kg	97.01455218	2.985447817	-100.0400009	452590	5424422	OU 1 North	-3.4108	3.9896	0.3243	1
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Aluminum	12600	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Antimony	1.8	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Arsenic	26.2	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Barium	95.1	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Beryllium	0.45	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Cadmium	1.6	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Calcium	3960	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Chromium	68.5	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Cobalt	15.5	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Copper	52.8	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Iron	30100	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Lead	59.9	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Magnesium	9770	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Manganese	534	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Mercury	0.14	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Nickel	52.8	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Potassium	852	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Selenium	5.4	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Silver	1.2	FALSE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Sodium	34.1	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Thallium	3	FALSE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Vanadium	38.4	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X1	MJ4EW6	2005-04-07	Unk	Sediment	Zinc	260	TRUE	mg/kg	56.2	13.6	-1121.880005	420010	5389862	OU 2 Transitional CSM Unit	1.2905	-1.9917	0.8159	2
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Aluminum	13100	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Antimony	12	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Arsenic	17.8	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Barium	567	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Beryllium	0.66	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Cadmium	1.3	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Calcium	27200	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Chromium	39.3	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Cobalt	14.7	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Copper	720	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Iron	106000	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Lead	596	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Magnesium	4880	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Manganese	2090	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Mercury	0.021	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Nickel	8.4	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Potassium	2100	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Selenium	23.4	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Silver	1.2	FALSE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Sodium	585	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Thallium	3	FALSE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Vanadium	30.6	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X2	MJ4EW7	2005-04-07	Unk	Sediment	Zinc	11100	TRUE	mg/kg	88.7	11.3	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-3.2191	3.2154	0.3148	1
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Aluminum	7060	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Antimony	7	FALSE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Arsenic	2.3	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Barium	198	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Beryllium	0.63	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Cadmium	0.68	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Calcium	10100	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Chromium	16.7	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Cobalt	5.8	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Copper	14.5	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Iron	13800	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Lead	49.4	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Magnesium	7290	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Manganese	224	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Mercury	0.11	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Nickel	12.7	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Potassium	1100	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Selenium	4.1	FALSE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Silver	1.2	FALSE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Sodium	133	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Vanadium	23.8	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM705X3	MJ4EW8	2005-04-07	Unk	Sediment	Zinc	166	TRUE	mg/kg	64	36	128.2799988	418302	5390211	OU 2 Transitional CSM Unit	-0.1075	-1.5727	-0.0954	2
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Aluminum	18300	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Antimony	11.6	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Arsenic	19.7	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Barium	836	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Cadmium	2.3	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Calcium	42600	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Chromium	48.1	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Cobalt	23.8	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Copper	1150	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Iron	174000	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Lead	954	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Magnesium	5930	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Manganese	3470	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Mercury	0.014	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Nickel	6.1	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Potassium	3470	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Selenium	3.6	FALSE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Silver	1	FALSE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Sodium	1250	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Vanadium	38.5	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM704X2	MJ4EW9	2005-04-07	Unk	Sediment	Zinc	19500	TRUE	mg/kg	97.5	2.4	1.79	418669	5388553	OU 2 Transitional CSM Unit	-3.4488	4.135	0.651	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Aluminum	19000	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Antimony	18.6	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Arsenic	16.1	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Barium	1280	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Cadmium	1	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Calcium	58700	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Chromium	101	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Cobalt	29.5	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Copper	1620	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Iron	197000	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Lead	276	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Magnesium	6670	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Manganese	3080	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Mercury	0.028	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Nickel	9.3	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Potassium	3500	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Silver	1.1	FALSE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Sodium	1300	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Vanadium	36.6	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM742B3	MJ4EX0	2005-04-09	Unk	Sediment	Zinc	14900	TRUE	mg/kg	97.6	2.4	-74.5500031	452592	5424450	OU 1 North	-2.5983	4.7973	0.3279	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Aluminum	6280	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Antimony	8.9	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Arsenic	6.9	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Barium	459	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Beryllium	0.57	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Cadmium	2.8	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Calcium	28500	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Chromium	24.6	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Cobalt	9.7	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Copper	271	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Iron	33500	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Lead	163	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Magnesium	13800	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Manganese	619	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Mercury	0.098	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Nickel	11.7	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Potassium	1200	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Selenium	3.9	FALSE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Silver	1.1	FALSE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Sodium	272	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Vanadium	22	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1c	MJ4EX1	2005-04-11	Unk	Sediment	Zinc	2220	TRUE	mg/kg	79.77978757	17.80416839	-187.4700012	443421	5419071	OU 1 North	-3.2771	0.062	-0.8822	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Aluminum	17300	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Antimony	52.1	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Arsenic	18.2	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Barium	1620	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Cadmium	0.84	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Calcium	58100	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Chromium	111	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Cobalt	48.2	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Copper	2130	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Iron	171000	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Lead	239	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Magnesium	6040	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Manganese	3430	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Mercury	0.027	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Nickel	13.6	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Potassium	3500	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Selenium	3.6	FALSE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Silver	1	FALSE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Sodium	1890	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Vanadium	36.7	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM735B1L	MJ4EX2	2005-04-11	Unk	Sediment	Zinc	14600	TRUE	mg/kg	96.64929114	3.350708862	-121.75	443437	5419142	OU 1 North	-2.4179	5.2718	0.4477	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Aluminum	8100	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Antimony	35.4	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Arsenic	12.2	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Barium	628	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Cadmium	1.5	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Calcium	26000	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Chromium	49	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Cobalt	23.6	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Copper	747	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Iron	64100	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Lead	147	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Magnesium	7340	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Manganese	1340	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Mercury	0.055	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Nickel	10.4	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Potassium	1510	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Selenium	4.4	FALSE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Silver	1.3	FALSE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Sodium	679	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Vanadium	23.8	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM728X3	MJ4EX3	2005-04-07	Unk	Sediment	Zinc	5010	TRUE	mg/kg	96.4	3.6	83.4599991	436648	5413779	OU 1 North	-2.7686	2.819	0.1026	1
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Aluminum	5950	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Antimony	3.6	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Arsenic	6.9	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Barium	465	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Beryllium	0.59	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Cadmium	3.1	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Calcium	27300	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Chromium	16.6	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Cobalt	6.7	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Copper	98	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Iron	21300	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Lead	156	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Magnesium	14500	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Manganese	288	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Mercury	0.099	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Nickel	13.1	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Potassium	1130	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Selenium	3.9	FALSE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Silver	1.1	FALSE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Sodium	139	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Vanadium	24.9	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM735B1R	MJ4EX4	2005-04-11	Unk	Sediment	Zinc	1020	TRUE	mg/kg	61.36595311	36.79918451	-215.3600006	443474	5419056	OU 1 North	-2.9929	-1.5786	-1.5778	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Aluminum	5630	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Antimony	4.5	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Arsenic	8.6	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Barium	361	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Cadmium	3.6	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Calcium	24900	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Chromium	22.1	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Cobalt	9.9	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Copper	236	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Iron	27500	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Lead	166	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Magnesium	12200	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Manganese	584	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Mercury	0.24	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Nickel	11.9	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Potassium	1090	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Silver	1.5	FALSE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Sodium	174	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Thallium	3.8	FALSE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Vanadium	20.7	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM727X3	MJ4EX5	2005-04-08	Unk	Sediment	Zinc	1830	TRUE	mg/kg	74.6	25.4	218.1100006	434921	5412587	OU 1 South	-3.5085	-0.7321	-0.8343	2
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Aluminum	5630	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Arsenic	1.8	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Barium	56.5	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Beryllium	0.34	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Cadmium	0.29	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Calcium	8620	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Chromium	9.8	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Cobalt	4.1	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Copper	13.4	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Iron	9350	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Lead	9.6	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Magnesium	3400	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Manganese	171	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Mercury	0.005	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Nickel	8.1	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Potassium	906	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Silver	1.1	FALSE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Sodium	100	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Vanadium	19	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X1	MJ4EX8	2005-04-08	Unk	Sediment	Zinc	45.4	TRUE	mg/kg	69.8	6.8	-499.3699951	417297	5384483	OU 2 Transitional CSM Unit	2.1103	-0.2516	-0.301	3
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Aluminum	8360	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Antimony	5.2	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Arsenic	8.5	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Barium	400	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Beryllium	0.62	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Cadmium	1.8	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Calcium	20800	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Chromium	30.6	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Cobalt	11.7	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Copper	480	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Iron	57300	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Lead	184	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Magnesium	5800	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Manganese	1160	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Mercury	0.037	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Nickel	8.7	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Potassium	1410	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Silver	1.2	FALSE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Sodium	436	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Vanadium	21.9	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X2	MJ4EX9	2005-04-08	Unk	Sediment	Zinc	4700	TRUE	mg/kg	92.8	7.2	-63.4300003	416962	5384805	OU 2 Transitional CSM Unit	-3.0006	2.1109	0.2989	1
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Aluminum	2530	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Arsenic	0.95	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Barium	29.6	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Beryllium	0.22	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Cadmium	0.14	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Calcium	2000	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Chromium	5.2	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Cobalt	2.8	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Copper	5.8	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Iron	5140	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Lead	5.4	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Magnesium	1760	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Manganese	91.9	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Nickel	4.9	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Potassium	566	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Silver	0.97	FALSE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Sodium	19.5	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Vanadium	7.7	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM701X3	MJ4EY0	2005-04-08	Unk	Sediment	Zinc	27.4	TRUE	mg/kg	80.7	5.7	161.1699982	416709	5384857	OU 2 Transitional CSM Unit	1.3661	-1.8248	0.7306	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Aluminum	15400	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Arsenic	3.2	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Barium	221	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Cadmium	1.3	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Calcium	10300	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Chromium	23.4	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Cobalt	10.1	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Copper	32.5	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Iron	23600	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Lead	38.2	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Magnesium	7850	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Manganese	378	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Mercury	0.17	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Nickel	21.2	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Potassium	2260	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Silver	2.8	FALSE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Sodium	179	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Thallium	7.1	FALSE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Vanadium	32.9	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM699T1	MJ4EY1	2005-04-08	Unk	Sediment	Zinc	168	TRUE	mg/kg	5.744586832	94.25541317	-1483.199951	418084	5380631	OU 2 Upper Laucustrine CSM Unit	0.5993	-1.4911	0.785	2
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Aluminum	5870	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Antimony	21.8	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Arsenic	9.9	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Barium	353	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Beryllium	0.47	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Cadmium	1.9	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Calcium	22800	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Chromium	29.2	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Cobalt	11.4	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Copper	449	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Iron	42100	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Lead	172	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Magnesium	8380	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Manganese	805	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Mercury	0.095	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Nickel	9	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Potassium	946	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Silver	1	FALSE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Sodium	347	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Vanadium	19.8	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM741X1	MJ4EY2	2005-04-09	Unk	Sediment	Zinc	3250	TRUE	mg/kg	85.83690987	8.560681093	-97.7900009	451527	5423910	OU 1 North	-3.3706	1.1979	-0.3755	1
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Aluminum	5460	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Antimony	8.4	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Arsenic	5.9	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Barium	263	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Beryllium	0.53	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Cadmium	1.9	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Calcium	15800	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Chromium	19.8	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Cobalt	7	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Copper	147	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Iron	20400	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Lead	119	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Magnesium	8720	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Manganese	302	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Mercury	0.26	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Nickel	10.3	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Potassium	988	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Silver	1.3	FALSE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Sodium	164	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Vanadium	21.6	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM740X3	MJ4EY3	2005-04-09	Unk	Sediment	Zinc	1110	TRUE	mg/kg	74.14417111	23.84699667	45.1800003	450093	5423210	OU 1 North	-2.9055	-1.2029	-0.4253	2
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Aluminum	9810	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Antimony	14.8	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Arsenic	10.5	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Barium	616	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Beryllium	0.73	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Cadmium	3.2	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Calcium	43700	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Chromium	37.8	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Cobalt	14.6	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Copper	598	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Iron	71600	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Lead	249	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Magnesium	14500	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Manganese	1220	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Mercury	0.14	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Nickel	11.2	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Potassium	1850	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Selenium	3.3	FALSE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Silver	0.95	FALSE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Sodium	678	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Vanadium	26.8	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2c	MJ4EY4	2005-04-11	Unk	Sediment	Zinc	5900	TRUE	mg/kg	85.90927338	14.09072662	-182.8899994	443443	5419080	OU 1 North	-3.6016	1.3114	-0.5466	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Aluminum	21000	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Antimony	53.2	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Arsenic	23.2	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Barium	1980	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Cadmium	0.27	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Calcium	68800	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Chromium	133	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Cobalt	57.3	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Copper	2620	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Iron	213000	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Lead	324	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Magnesium	6370	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Manganese	4150	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Mercury	0.017	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Nickel	15.4	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Potassium	4150	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Selenium	3.5	FALSE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Silver	1	FALSE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Sodium	2470	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Vanadium	41.2	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2L	MJ4EY5	2005-04-11	Unk	Sediment	Zinc	17100	TRUE	mg/kg	98.12796647	1.87203353	-126.1999969	443439	5419138	OU 1 North	-1.86	6.202	0.2417	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Aluminum	6670	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Antimony	13.7	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Arsenic	9.3	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Barium	512	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Beryllium	0.59	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Cadmium	3.7	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Calcium	37400	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Chromium	27.8	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Cobalt	10.6	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Copper	328	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Iron	40100	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Lead	194	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Magnesium	16200	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Manganese	642	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Mercury	0.14	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Nickel	12.5	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Potassium	1210	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Selenium	3.7	FALSE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Silver	1.1	FALSE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Sodium	294	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Vanadium	25.5	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B2R	MJ4EY6	2005-04-11	Unk	Sediment	Zinc	2630	TRUE	mg/kg	83.0346089	15.3580671	-213.5800018	443487	5419063	OU 1 North	-3.5479	-0.0944	-1.1567	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Aluminum	5720	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Antimony	9.6	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Arsenic	6.1	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Barium	403	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Beryllium	0.54	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Cadmium	3.7	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Calcium	30400	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Chromium	27.3	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Cobalt	11.6	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Copper	364	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Iron	34600	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Lead	174	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Magnesium	13400	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Manganese	672	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Mercury	0.17	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Nickel	11	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Potassium	1210	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Selenium	3.8	FALSE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Silver	1.1	FALSE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Sodium	249	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Vanadium	20.1	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM735B3c	MJ4EY7	2005-04-11	Unk	Sediment	Zinc	2760	TRUE	mg/kg	87.43838656	12.56161344	-181.4700012	443468	5419090	OU 1 North	-3.6759	0.0202	-0.5627	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Aluminum	17100	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Antimony	53.5	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Arsenic	27.4	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Barium	1660	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Cadmium	1.1	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Calcium	57100	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Chromium	120	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Cobalt	61.2	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Copper	2240	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Iron	180000	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Lead	302	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Magnesium	5920	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Manganese	3880	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Mercury	0.12	FALSE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Nickel	13.2	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Potassium	3400	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Silver	1.1	FALSE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Sodium	2040	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Vanadium	38.1	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X2	MJ4EY8	2005-04-09	Unk	Sediment	Zinc	14800	TRUE	mg/kg	96.59067231	2.709123462	-11.2799997	433724	5411689	OU 1 South	-2.8898	4.8391	0.5425	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Aluminum	6140	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Antimony	18.4	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Arsenic	9.4	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Barium	370	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Beryllium	0.54	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Cadmium	2.6	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Calcium	19400	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Chromium	29.6	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Cobalt	13.8	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Copper	398	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Iron	35600	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Lead	155	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Magnesium	8220	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Manganese	729	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Mercury	0.094	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Nickel	10.5	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Potassium	1010	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Silver	1.4	FALSE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Sodium	314	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Thallium	3.5	FALSE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Vanadium	20.7	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM726X3	MJ4EY9	2005-04-09	Unk	Sediment	Zinc	2730	TRUE	mg/kg	85.92896624	14.07103376	112.4499969	433744	5411834	OU 1 South	-3.182	0.8277	-0.1063	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Aluminum	23100	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Antimony	43.6	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Arsenic	35.7	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Barium	2250	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Beryllium	1.7	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Cadmium	0.48	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Calcium	80300	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Chromium	145	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Cobalt	56.6	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Copper	3290	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Iron	254000	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Lead	535	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Magnesium	6200	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Manganese	4780	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Mercury	0.017	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Nickel	17.1	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Potassium	4730	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Selenium	3.3	FALSE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Silver	0.95	FALSE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Sodium	2780	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Vanadium	42.6	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM735B3L	MJ4EZ0	2005-04-11	Unk	Sediment	Zinc	22200	TRUE	mg/kg	98.32507289	1.674927106	-129.1100006	443442	5419136	OU 1 North	-2.37	6.0649	0.1817	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Aluminum	10700	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Antimony	11.2	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Arsenic	13.7	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Barium	686	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Beryllium	0.77	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Cadmium	2.5	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Calcium	35100	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Chromium	51.3	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Cobalt	22.4	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Copper	802	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Iron	82100	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Lead	214	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Magnesium	9090	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Manganese	1660	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Mercury	0.073	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Nickel	10.4	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Potassium	2030	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Silver	1	FALSE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Sodium	811	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Thallium	1.3	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Vanadium	27.2	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B1	MJ4EZ2	2005-04-08	Unk	Sediment	Zinc	6560	TRUE	mg/kg	92.03681473	7.963185274	-77.7600021	436981	5413664	OU 1 North	-3.092	2.5432	0.0282	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Aluminum	11900	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Antimony	32.4	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Arsenic	22.5	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Barium	1070	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Beryllium	0.88	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Cadmium	1.9	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Calcium	39900	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Chromium	77.6	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Cobalt	36.8	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Copper	1380	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Iron	110000	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Lead	190	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Magnesium	6450	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Manganese	2200	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Mercury	0.044	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Nickel	12.1	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Potassium	2300	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Silver	0.97	FALSE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Sodium	1300	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Thallium	1.1	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Vanadium	29.2	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B2	MJ4EZ3	2005-04-08	Unk	Sediment	Zinc	8410	TRUE	mg/kg	95.3	4.7	-68.8700027	436977	5413672	OU 1 North	-2.8018	3.944	0.1279	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Aluminum	11300	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Antimony	24.8	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Arsenic	18.1	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Barium	1020	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Beryllium	0.84	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Cadmium	2.1	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Calcium	37700	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Chromium	71.9	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Cobalt	35.1	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Copper	1300	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Iron	108000	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Lead	205	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Magnesium	5640	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Manganese	2110	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Mercury	0.034	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Nickel	10.4	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Potassium	2270	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Silver	1	FALSE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Sodium	1200	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Thallium	0.83	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Vanadium	28.2	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM729B3	MJ4EZ4	2005-04-08	Unk	Sediment	Zinc	8700	TRUE	mg/kg	96.1	3.9	-61.9399986	436976	5413679	OU 1 North	-2.9263	4.0358	0.3215	1
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Aluminum	3420	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Arsenic	1.5	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Barium	35.2	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Beryllium	0.26	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Cadmium	0.15	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Calcium	1680	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Chromium	8.3	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Cobalt	2.8	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Copper	5	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Iron	6680	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Lead	7	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Magnesium	2160	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Manganese	106	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Nickel	7.4	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Potassium	372	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Selenium	3.7	FALSE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Silver	1.1	FALSE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Sodium	42.1	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Vanadium	10.2	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X1	MJ4EZ8	2005-04-11	Unk	Sediment	Zinc	32.5	TRUE	mg/kg	93.28049776	4.114461483	-195.9600067	412114	5370136	OU 2 Upper Laucustrine CSM Unit	1.6653	-1.6142	0.8752	3
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Aluminum	12400	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Arsenic	8.6	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Barium	619	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Beryllium	1.1	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Cadmium	4.4	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Calcium	25000	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Chromium	30.5	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Cobalt	10.9	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Copper	141	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Iron	29000	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Lead	218	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Magnesium	16300	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Manganese	496	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Mercury	0.35	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Nickel	23.7	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Potassium	1970	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Selenium	6.1	FALSE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Silver	1.8	FALSE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Sodium	219	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Thallium	4.4	FALSE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Vanadium	38.4	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM689X2	MJ4EZ9	2005-04-11	Unk	Sediment	Zinc	910	TRUE	mg/kg	16.52134006	83.47865994	-23.8799992	412001	5370271	OU 2 Upper Laucustrine CSM Unit	-2.5074	-1.8902	-0.5401	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Aluminum	11800	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Arsenic	8	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Barium	348	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Cadmium	2.6	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Calcium	13700	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Chromium	30.9	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Cobalt	10	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Copper	77.5	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Iron	23800	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Lead	99.9	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Magnesium	10300	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Manganese	373	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Mercury	0.14	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Nickel	20.7	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Potassium	2030	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Silver	2.1	FALSE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Sodium	184	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Thallium	5.2	FALSE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Vanadium	40.1	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2
2005 Phase 1 Sediment Sampling	RM698X2	MJ4F00	2005-04-09	Unk	Sediment	Zinc	521	TRUE	mg/kg	21.21581313	78.78418687	123.5500031	416382	5380698	OU 2 Upper Laucustrine CSM Unit	-0.9823	-1.7035	0.1109	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Aluminum	3160	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Arsenic	1.2	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Barium	29.2	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Beryllium	0.28	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Cadmium	0.13	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Calcium	5970	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Chromium	5.5	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Cobalt	2.5	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Copper	4.5	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Iron	5550	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Lead	2.6	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Magnesium	2390	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Manganese	137	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Mercury	0.12	FALSE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Nickel	4.1	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Potassium	957	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Silver	1.1	FALSE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Sodium	72.6	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Vanadium	9.6	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM698X3	MJ4F01	2005-04-09	Unk	Sediment	Zinc	16	TRUE	mg/kg	68.08234722	31.51240071	480.3200073	416050	5380836	OU 2 Upper Laucustrine CSM Unit	2.2272	-1.3285	-0.3454	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Aluminum	7180	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Antimony	6.2	FALSE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Arsenic	4.8	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Barium	81.8	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Beryllium	0.62	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Cadmium	0.24	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Calcium	13100	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Chromium	19.4	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Cobalt	8.1	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Copper	15.9	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Iron	16300	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Lead	8.3	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Magnesium	5850	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Manganese	339	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Mercury	0.0065	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Nickel	18	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Potassium	1250	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Selenium	3.6	FALSE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Silver	1	FALSE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Sodium	154	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Vanadium	30	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X1	MJ4F02	2005-04-09	Unk	Sediment	Zinc	46.5	TRUE	mg/kg	30.86419753	69.13580247	-232.6199951	415915	5376532	OU 2 Upper Laucustrine CSM Unit	3.2626	0.2523	-0.6328	3
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Aluminum	10700	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Antimony	2	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Arsenic	5.7	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Barium	271	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Beryllium	1	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Cadmium	2.4	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Calcium	11100	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Chromium	26.4	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Cobalt	9.2	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Copper	73.5	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Iron	22100	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Lead	96.4	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Magnesium	9040	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Manganese	354	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Mercury	0.29	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Nickel	20.8	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Potassium	1490	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Selenium	7.3	FALSE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Silver	2.1	FALSE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Sodium	178	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Thallium	5.2	FALSE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Vanadium	34.4	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X2	MJ4F03	2005-04-09	Unk	Sediment	Zinc	471	TRUE	mg/kg	8	91.8	9.2700005	415651	5376601	OU 2 Upper Laucustrine CSM Unit	-1.2649	-1.9177	0.4667	2
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Aluminum	4320	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Antimony	5.8	FALSE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Arsenic	1.7	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Barium	48	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Beryllium	0.34	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Cadmium	0.26	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Calcium	1830	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Chromium	9.7	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Cobalt	3.2	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Copper	7.5	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Iron	8020	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Lead	13.7	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Magnesium	2410	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Manganese	123	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Mercury	0.0099	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Nickel	7.3	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Potassium	741	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Selenium	3.4	FALSE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Silver	0.96	FALSE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Sodium	72.6	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Vanadium	14.6	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM695X3	MJ4F04	2005-04-09	Unk	Sediment	Zinc	56.1	TRUE	mg/kg	89.28571429	6.91339138	721.4699707	414919	5376771	OU 2 Upper Laucustrine CSM Unit	1.8653	-0.86	1.1034	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Aluminum	6000	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Arsenic	6.4	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Barium	36.3	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Beryllium	0.32	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Cadmium	0.2	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Calcium	12400	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Chromium	14.8	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Cobalt	5.6	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Copper	14.7	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Iron	13500	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Lead	4.1	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Magnesium	5530	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Manganese	214	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Nickel	16.2	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Potassium	664	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Selenium	3.6	FALSE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Silver	1	FALSE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Sodium	117	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Vanadium	23.2	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X1	MJ4F07	2005-04-11	Unk	Sediment	Zinc	41.4	TRUE	mg/kg	90.62506259	4.468166069	-179.0800018	411167	5365911	OU 2 Upper Laucustrine CSM Unit	2.7081	-1.1176	-1.0817	3
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Aluminum	13400	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Antimony	3.4	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Arsenic	10.7	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Barium	322	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Cadmium	5.6	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Calcium	7780	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Chromium	34.9	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Cobalt	11.5	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Copper	124	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Iron	25600	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Lead	296	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Magnesium	8340	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Manganese	539	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Mercury	1.3	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Nickel	25.4	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Potassium	2220	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Selenium	6.7	FALSE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Silver	1.9	FALSE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Sodium	259	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Thallium	4.8	FALSE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Vanadium	37.8	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM686X2	MJ4F08	2005-04-11	Unk	Sediment	Zinc	663	TRUE	mg/kg	25.97742802	74.02257198	50.1800003	410934	5365907	OU 2 Upper Laucustrine CSM Unit	-2.2571	-2.517	1.317	2
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Aluminum	7590	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Arsenic	5.4	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Barium	91	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Beryllium	0.66	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Cadmium	0.24	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Calcium	14500	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Chromium	21.5	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Cobalt	8.8	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Copper	18.4	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Iron	16900	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Lead	7.9	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Magnesium	6670	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Manganese	336	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Mercury	0.13	FALSE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Nickel	20.6	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Potassium	1500	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Selenium	4.2	FALSE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Silver	1.2	FALSE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Sodium	156	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Thallium	3	FALSE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Vanadium	29.7	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X1	MJ4F09	2005-04-11	Unk	Sediment	Zinc	52.3	TRUE	mg/kg	53.22953924	46.77046076	-1449.77002	412733	5362035	OU 2 Upper Laucustrine CSM Unit	2.522	-0.8268	-0.576	3
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Aluminum	15000	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Antimony	3.8	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Arsenic	9.5	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Barium	321	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Cadmium	5.9	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Calcium	9460	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Chromium	39.2	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Cobalt	11.3	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Copper	116	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Iron	28000	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Lead	329	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Magnesium	9240	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Manganese	464	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Mercury	1.5	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Nickel	26.2	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Potassium	2320	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Selenium	10.2	FALSE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Silver	2.9	FALSE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Sodium	270	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Thallium	7.3	FALSE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Vanadium	40	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X2	MJ4F10	2005-04-11	Unk	Sediment	Zinc	662	TRUE	mg/kg	6.416584403	93.5834156	-5.0700002	411366	5361539	OU 2 Upper Laucustrine CSM Unit	-2.2324	-2.7242	1.2905	2
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Aluminum	6440	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Arsenic	4.6	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Barium	82	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Beryllium	0.59	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Cadmium	0.23	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Calcium	12100	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Chromium	18.1	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Cobalt	8.2	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Copper	16.1	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Iron	14900	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Lead	7.7	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Magnesium	5490	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Manganese	329	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Mercury	0.13	FALSE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Nickel	17.8	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Potassium	1260	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Selenium	4.2	FALSE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Silver	1.2	FALSE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Sodium	125	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Thallium	3	FALSE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Vanadium	27.5	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM683X3	MJ4F11	2005-04-11	Unk	Sediment	Zinc	45.8	TRUE	mg/kg	25.97070845	74.02929155	486.6600037	410900	5361355	OU 2 Upper Laucustrine CSM Unit	2.3925	-0.8375	-0.4297	3
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Aluminum	6120	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Antimony	20.2	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Arsenic	9.5	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Barium	345	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Beryllium	0.57	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Cadmium	1.3	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Calcium	19200	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Chromium	26.8	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Cobalt	11.9	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Copper	281	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Iron	30900	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Lead	107	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Magnesium	8930	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Manganese	600	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Mercury	0.057	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Nickel	12.4	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Potassium	1190	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Selenium	4.2	FALSE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Silver	1.2	FALSE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Sodium	279	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Thallium	3	FALSE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Vanadium	24.2	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM738X1	MJ4F13	2005-04-11	Unk	Sediment	Zinc	1900	TRUE	mg/kg	82.56935826	16.73005324	-37.0900002	447763	5421496	OU 1 North	-2.2691	0.7036	-0.4846	1
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Aluminum	4070	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Antimony	1.7	FALSE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Arsenic	2.3	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Barium	80.5	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Beryllium	0.34	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Cadmium	0.61	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Calcium	10700	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Chromium	9.8	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Cobalt	4.2	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Copper	31.6	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Iron	9880	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Lead	32.2	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Magnesium	4450	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Manganese	205	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Mercury	0.023	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Nickel	8.1	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Potassium	664	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Silver	0.96	FALSE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Sodium	114	FALSE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Vanadium	15.2	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X1	MJ4F14	2005-04-11	Unk	Sediment	Zinc	268	TRUE	mg/kg	85.93082061	7.969974936	-80.0500031	432415	5410449	OU 1 South	-0.6197	-0.7403	-0.3389	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Aluminum	5580	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Antimony	1.2	FALSE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Arsenic	4	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Barium	209	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Beryllium	0.48	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Cadmium	1.9	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Calcium	12500	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Chromium	17	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Cobalt	5.2	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Copper	45.7	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Iron	15000	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Lead	142	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Magnesium	7520	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Manganese	147	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Mercury	0.13	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Nickel	11.8	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Potassium	903	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Silver	1.1	FALSE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Sodium	95.5	FALSE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Vanadium	21.3	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM725X3	MJ4F15	2005-04-11	Unk	Sediment	Zinc	621	TRUE	mg/kg	80.2	19.2	166.5	432171	5410526	OU 1 South	-2.291	-2.226	-0.395	2
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Aluminum	20500	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Antimony	30.3	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Arsenic	24.9	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Cadmium	2.5	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Calcium	66600	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Chromium	147	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Cobalt	62.9	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Copper	3030	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Iron	214000	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Lead	250	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Magnesium	5290	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Manganese	4730	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Mercury	0.0074	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Nickel	15.6	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Potassium	4770	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Silver	0.86	FALSE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Sodium	2840	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Vanadium	43.7	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM724X2	MJ4F16	2005-04-11	Unk	Sediment	Zinc	19200	TRUE	mg/kg	98.5	1.5	-6.4099998	432253	5409072	OU 1 South	-2.3617	5.9104	0.6979	1
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Aluminum	5400	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Antimony	0.37	FALSE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Arsenic	1.4	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Barium	48.3	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Beryllium	0.36	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Cadmium	0.11	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Calcium	2220	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Chromium	10.6	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Cobalt	3.8	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Copper	9.9	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Iron	11300	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Lead	5.2	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Magnesium	3230	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Manganese	259	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Nickel	8.3	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Potassium	558	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Silver	1	FALSE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Sodium	90.5	FALSE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Vanadium	26.8	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1c	MJ4F20	2005-04-12	Unk	Sediment	Zinc	32.9	TRUE	mg/kg	82.986598	2.413737613	-435.5299988	417129	5382774	OU 2 Transitional CSM Unit	2.5101	-0.6484	1.132	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Aluminum	4600	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Antimony	0.61	FALSE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Arsenic	1.5	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Barium	43.6	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Beryllium	0.32	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Cadmium	0.18	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Calcium	1900	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Chromium	9.1	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Cobalt	3.1	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Copper	10.7	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Iron	8640	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Lead	6	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Magnesium	2560	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Manganese	125	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Nickel	7.4	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Potassium	585	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Silver	0.91	FALSE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Sodium	96.9	FALSE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Vanadium	16.9	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1L	MJ4F21	2005-04-12	Unk	Sediment	Zinc	36	TRUE	mg/kg	97.4	2.6	-436.8500061	417151	5382700	OU 2 Transitional CSM Unit	1.7864	-1.2657	1.0985	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Aluminum	4700	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Antimony	5.3	FALSE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Arsenic	1.8	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Barium	37.9	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Beryllium	0.31	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Cadmium	0.15	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Calcium	1950	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Chromium	9.7	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Cobalt	3.2	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Copper	9.8	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Iron	8650	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Lead	4.3	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Magnesium	2870	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Manganese	146	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Mercury	0.098	FALSE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Nickel	7.6	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Potassium	523	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Silver	0.89	FALSE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Sodium	103	FALSE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Vanadium	18.5	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B1R	MJ4F22	2005-04-12	Unk	Sediment	Zinc	33	TRUE	mg/kg	82.5	3.1	-446.2900085	417111	5382846	OU 2 Transitional CSM Unit	2.2668	-1.1053	0.9213	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Aluminum	5740	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Antimony	0.95	FALSE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Arsenic	1	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Barium	40.3	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Beryllium	0.38	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Cadmium	0.15	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Calcium	2570	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Chromium	10.1	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Cobalt	3.5	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Copper	10	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Iron	9930	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Lead	7.3	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Magnesium	3100	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Manganese	147	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Nickel	7.8	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Potassium	657	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Silver	0.83	FALSE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Sodium	124	FALSE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Thallium	2.1	FALSE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Vanadium	20.9	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2c	MJ4F23	2005-04-12	Unk	Sediment	Zinc	42	TRUE	mg/kg	82.93669679	6.068538816	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	2.0765	-1.0954	1.3369	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Aluminum	4910	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Antimony	6.4	FALSE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Arsenic	1.3	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Barium	40.3	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Beryllium	0.37	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Cadmium	0.23	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Calcium	2460	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Chromium	9.6	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Cobalt	3.5	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Copper	9.2	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Iron	9320	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Lead	6.8	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Magnesium	2860	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Manganese	161	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Nickel	8.3	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Potassium	585	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Silver	1.1	FALSE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Sodium	109	FALSE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Vanadium	19.7	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2L	MJ4F24	2005-04-12	Unk	Sediment	Zinc	39.9	TRUE	mg/kg	83	3.4	-406.8800049	417121	5382697	OU 2 Transitional CSM Unit	1.8621	-1.2983	1.2266	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Aluminum	4760	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Antimony	0.3	FALSE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Arsenic	1.5	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Barium	38.4	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Beryllium	0.36	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Cadmium	0.11	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Calcium	2380	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Chromium	9.6	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Cobalt	3.8	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Copper	9.3	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Iron	9690	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Lead	4	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Magnesium	2690	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Manganese	145	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Nickel	7.2	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Potassium	631	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Silver	0.8	FALSE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Sodium	111	FALSE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Thallium	2	FALSE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Vanadium	20.5	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B2R	MJ4F25	2005-04-12	Unk	Sediment	Zinc	26.7	TRUE	mg/kg	81	2.9	-439.5599976	417103	5382847	OU 2 Transitional CSM Unit	2.6361	-0.82	0.9856	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Aluminum	16000	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Antimony	1.3	FALSE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Arsenic	2.3	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Barium	169	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Cadmium	0.36	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Calcium	16200	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Chromium	36.9	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Cobalt	12.7	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Copper	26.7	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Iron	26000	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Lead	10.7	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Magnesium	9960	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Manganese	605	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Mercury	0.0068	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Nickel	29.9	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Potassium	3160	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Silver	1.2	FALSE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Sodium	437	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Vanadium	49.7	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3c	MJ4F26	2005-04-12	Unk	Sediment	Zinc	74.3	TRUE	mg/kg	0.493364251	99.50663575	-406.25	417099	5382771	OU 2 Transitional CSM Unit	3.6834	0.7324	0.4912	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Aluminum	10100	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Antimony	0.31	FALSE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Arsenic	1.8	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Barium	106	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Beryllium	0.83	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Cadmium	0.22	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Calcium	7890	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Chromium	21.6	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Cobalt	7.5	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Copper	16.1	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Iron	16200	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Lead	8.3	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Magnesium	5970	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Manganese	390	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Mercury	0.0069	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Nickel	18.1	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Potassium	1750	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Silver	0.99	FALSE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Sodium	251	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Vanadium	31.3	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700B3R	MJ4F29	2005-04-12	Unk	Sediment	Zinc	51.6	TRUE	mg/kg	52.09513024	39.25666632	-434.2099915	417096	5382849	OU 2 Transitional CSM Unit	3.4023	0.4933	0.5731	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Aluminum	4730	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Aluminum	4730	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Antimony	0.35	FALSE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Antimony	0.35	FALSE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Arsenic	0.97	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Arsenic	0.97	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Barium	38.5	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Barium	38.5	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Beryllium	0.33	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Beryllium	0.33	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Cadmium	0.18	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Cadmium	0.18	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Calcium	2260	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Calcium	2260	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Chromium	8.7	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Chromium	8.7	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Cobalt	3.2	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Cobalt	3.2	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Copper	9.4	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Copper	9.4	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Iron	8500	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Iron	8500	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Lead	5.6	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Lead	5.6	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Magnesium	2820	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Magnesium	2820	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Manganese	142	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Manganese	142	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Mercury	0.099	FALSE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Mercury	0.099	FALSE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Nickel	7.4	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Nickel	7.4	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Potassium	583	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Potassium	583	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Silver	0.87	FALSE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Silver	0.87	FALSE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Sodium	107	FALSE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Sodium	107	FALSE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Vanadium	17.6	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Vanadium	17.6	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Zinc	35.4	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM700BSF	MJ4F30	2005-04-12	Unk	Sediment	Zinc	35.4	TRUE	mg/kg	73.32979373	11.64360919	-418.8299866	417112	5382772	OU 2 Transitional CSM Unit	1.9363	-1.1861	1.2477	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Aluminum	12200	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Antimony	0.4	FALSE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Arsenic	3.3	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Barium	150	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Beryllium	1	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Cadmium	0.36	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Calcium	11000	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Chromium	26.2	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Cobalt	10.7	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Copper	22.3	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Iron	19400	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Lead	12.7	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Magnesium	7510	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Manganese	529	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Mercury	0.0063	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Nickel	24.9	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Potassium	2410	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Silver	0.98	FALSE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Sodium	289	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Vanadium	33.8	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X1	MJ4F31	2005-04-12	Unk	Sediment	Zinc	68.9	TRUE	mg/kg	33.85472466	64.21684165	-1101.280029	413726	5356627	OU 2 Upper Laucustrine CSM Unit	3.1959	0.5193	0.2505	3
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Aluminum	15200	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Antimony	3.5	FALSE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Arsenic	6.7	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Barium	359	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Cadmium	3.7	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Calcium	11400	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Chromium	35.4	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Cobalt	11.4	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Copper	115	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Iron	26300	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Lead	194	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Magnesium	9710	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Manganese	517	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Mercury	0.69	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Nickel	25	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Potassium	2530	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Silver	1.9	FALSE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Sodium	363	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Thallium	4.9	FALSE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Vanadium	42.5	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM679X2	MJ4F32	2005-04-12	Unk	Sediment	Zinc	583	TRUE	mg/kg	3.190418927	96.80958107	59.2299995	412567	5356574	OU 2 Upper Laucustrine CSM Unit	-1.6647	-2.0195	1.0863	2
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Aluminum	21800	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Antimony	39.2	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Arsenic	55.1	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Barium	2280	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Beryllium	1.6	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Cadmium	0.42	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Calcium	74400	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Chromium	156	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Cobalt	75	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Copper	3020	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Iron	231000	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Lead	259	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Magnesium	5850	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Manganese	4920	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Mercury	0.005	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Nickel	15.7	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Potassium	4560	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Silver	11.6	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Sodium	2750	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Vanadium	43.9	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM737X2	MJ4F35	2005-04-12	Unk	Sediment	Zinc	20400	TRUE	mg/kg	98.32507289	1.674927106	-35.7000008	446426	5420712	OU 1 North	-1.4711	6.7934	-0.1528	1
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Aluminum	6860	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Antimony	4.2	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Arsenic	12.9	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Barium	299	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Beryllium	0.7	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Cadmium	3.3	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Calcium	7940	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Chromium	19.9	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Cobalt	5.9	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Copper	132	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Iron	24900	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Lead	339	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Magnesium	4460	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Manganese	267	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Mercury	0.8	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Nickel	14	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Potassium	1010	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Silver	1.3	FALSE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Sodium	200	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Vanadium	23.4	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM723X5	MJ4F36	2005-04-12	Unk	Sediment	Zinc	1320	TRUE	mg/kg	67.56972112	29.88047809	596.2399902	431311	5408025	OU 1 South	-3.7144	-2.0029	0.4553	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Aluminum	16300	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Antimony	4	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Arsenic	12.3	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Barium	397	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Cadmium	5.2	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Calcium	12500	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Chromium	39.8	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Cobalt	12.8	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Copper	142	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Iron	30500	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Lead	291	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Magnesium	11100	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Manganese	546	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Mercury	1.2	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Nickel	28.5	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Potassium	2330	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Silver	2.4	FALSE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Sodium	347	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Thallium	6	FALSE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Vanadium	44.4	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM680X2	MJ4F39	2005-04-12	Unk	Sediment	Zinc	719	TRUE	mg/kg	3.701647233	96.29835277	120.6299973	412168	5358083	OU 2 Upper Laucustrine CSM Unit	-2.1259	-2.3644	0.8199	2
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Aluminum	5880	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Antimony	0.63	FALSE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Arsenic	3.4	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Barium	48.8	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Beryllium	0.32	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Cadmium	0.06	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Calcium	9870	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Chromium	12.8	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Cobalt	4.6	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Copper	13.4	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Iron	12200	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Lead	3.8	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Magnesium	4310	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Manganese	265	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Nickel	12.7	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Potassium	462	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Silver	0.98	FALSE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Sodium	120	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Vanadium	19.7	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM681X1	MJ4F40	2005-04-12	Unk	Sediment	Zinc	34.2	TRUE	mg/kg	92.71576168	3.383575208	580.4500122	411682	5358430	OU 2 Upper Laucustrine CSM Unit	2.6788	-0.1958	-0.8857	3
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Aluminum	11500	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Antimony	42.9	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Arsenic	30.8	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Barium	1010	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Beryllium	0.93	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Cadmium	1.2	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Calcium	36300	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Chromium	74.5	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Cobalt	34.1	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Copper	1270	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Iron	109000	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Lead	196	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Magnesium	6180	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Manganese	2000	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Mercury	0.075	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Nickel	11.7	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Potassium	2230	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Silver	4.7	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Sodium	1070	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Vanadium	28.7	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM737X1	MJ4F41	2005-04-12	Unk	Sediment	Zinc	9020	TRUE	mg/kg	93.10658522	6.893414783	-93.0100021	446289	5420741	OU 1 North	-2.7925	3.7194	-0.0335	1
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Aluminum	6510	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Antimony	0.71	FALSE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Arsenic	2	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Barium	71.5	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Beryllium	0.56	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Cadmium	0.057	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Calcium	2860	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Chromium	13	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Cobalt	7	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Copper	10	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Iron	11600	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Lead	6.6	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Magnesium	3630	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Manganese	291	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Nickel	12.3	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Potassium	1020	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Silver	0.97	FALSE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Sodium	160	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Vanadium	23.2	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM693X1	MJ4F42	2005-04-12	Unk	Sediment	Zinc	36.4	TRUE	mg/kg	69.74708826	29.54601558	411.5499878	412746	5374990	OU 2 Upper Laucustrine CSM Unit	3.106	-0.0694	1.0121	3
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Aluminum	23900	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Antimony	4.6	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Arsenic	20.2	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Barium	391	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Beryllium	2	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Cadmium	7.3	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Calcium	9610	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Chromium	52.8	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Cobalt	16.7	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Copper	117	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Iron	41300	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Lead	362	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Magnesium	12100	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Manganese	1150	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Mercury	1.9	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Nickel	38	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Potassium	3660	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Silver	2.5	FALSE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Sodium	558	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Thallium	6.1	FALSE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Vanadium	61.3	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM678X2	MJ4F43	2005-04-12	Unk	Sediment	Zinc	855	TRUE	mg/kg	1.108647464	98.89135254	-789.5499878	413408	5355174	OU 2 Upper Laucustrine CSM Unit	-1.5301	-2.3074	1.5311	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Aluminum	3000	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Antimony	0.29	FALSE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Arsenic	1	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Barium	29.8	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Beryllium	0.28	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Cadmium	0.32	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Calcium	879	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Chromium	5.6	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Cobalt	2.3	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Copper	4.2	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Iron	5180	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Lead	16.5	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Magnesium	1390	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Manganese	111	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Mercury	0.099	FALSE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Nickel	4.1	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Potassium	483	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Silver	0.86	FALSE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Sodium	60.4	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Vanadium	9.1	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B1	MJ4F44	2005-04-13	Unk	Sediment	Zinc	53.8	TRUE	mg/kg	93.15216941	6.14762636	1037.73999	415082	5379214	OU 2 Upper Laucustrine CSM Unit	0.5823	-1.8685	2.0959	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Aluminum	7660	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Antimony	1.8	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Arsenic	1.4	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Barium	102	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Beryllium	0.69	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Cadmium	4.4	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Calcium	2550	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Chromium	14.6	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Cobalt	5.2	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Copper	16.5	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Iron	11800	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Lead	136	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Magnesium	3210	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Manganese	158	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Mercury	0.29	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Nickel	11.2	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Potassium	1120	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Silver	1.2	FALSE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Sodium	125	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Vanadium	19.8	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM697B2	MJ4F45	2005-04-13	Unk	Sediment	Zinc	391	TRUE	mg/kg	60.33121432	39.66878568	963.5200195	415143	5379168	OU 2 Upper Laucustrine CSM Unit	-1.6523	-3.0093	2.6709	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Aluminum	9310	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Antimony	3.7	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Arsenic	9.2	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Barium	498	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Beryllium	0.97	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Cadmium	4.8	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Calcium	20100	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Chromium	25.5	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Cobalt	9	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Copper	113	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Iron	23200	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Lead	195	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Magnesium	13100	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Manganese	382	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Mercury	0.49	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Nickel	20.1	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Potassium	1630	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Silver	1.3	FALSE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Sodium	205	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Vanadium	31.2	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM722X1	MJ4F48	2005-04-13	Unk	Sediment	Zinc	1000	TRUE	mg/kg	42.21167105	57.78832895	-281.230011	430286	5406805	OU 1 South	-2.8822	-2.2459	-0.5216	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Aluminum	6550	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Antimony	0.42	FALSE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Arsenic	2.4	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Barium	61.8	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Beryllium	0.46	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Cadmium	0.51	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Calcium	4830	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Chromium	12.8	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Cobalt	4.5	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Copper	10.9	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Iron	11000	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Lead	20.7	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Magnesium	4590	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Manganese	208	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Mercury	0.099	FALSE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Nickel	15	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Potassium	749	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Silver	0.89	FALSE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Sodium	134	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Vanadium	21.9	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B1	MJ4F49	2005-04-13	Unk	Sediment	Zinc	91.8	TRUE	mg/kg	74.2	5.6	610.5900269	412001	5372088	OU 2 Upper Laucustrine CSM Unit	1.0686	-1.7934	0.6556	2
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Aluminum	6050	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Antimony	1	FALSE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Arsenic	2.4	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Barium	57.6	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Cadmium	0.33	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Calcium	2430	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Chromium	12.4	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Cobalt	4.3	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Copper	14.5	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Iron	9960	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Lead	18.7	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Magnesium	2770	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Manganese	171	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Mercury	0.019	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Nickel	9.6	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Potassium	843	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Silver	1	FALSE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Sodium	131	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Vanadium	19.6	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B2	MJ4F50	2005-04-13	Unk	Sediment	Zinc	67.2	TRUE	mg/kg	69.8	14.4	579.9899902	412039	5371981	OU 2 Upper Laucustrine CSM Unit	1.6651	-0.8102	1.3082	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Aluminum	6370	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Antimony	0.95	FALSE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Arsenic	2.6	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Barium	56.4	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Beryllium	0.52	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Cadmium	0.45	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Chromium	12.7	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Cobalt	4.9	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Copper	13.8	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Iron	12000	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Lead	21.9	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Magnesium	3980	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Manganese	260	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Mercury	0.03	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Nickel	10.9	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Potassium	775	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Silver	1.1	FALSE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Sodium	155	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Vanadium	21.7	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM690B3	MJ4F51	2005-04-13	Unk	Sediment	Zinc	97.1	TRUE	mg/kg	72	17	481.6700134	412135	5372013	OU 2 Upper Laucustrine CSM Unit	1.4322	-0.886	1.2003	3
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Aluminum	21200	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Antimony	39.9	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Arsenic	53.2	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Barium	2130	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Cadmium	0.12	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Calcium	72600	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Chromium	150	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Cobalt	66.9	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Copper	2930	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Iron	218000	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Lead	352	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Magnesium	5870	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Manganese	4860	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Mercury	0.12	FALSE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Nickel	15.7	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Potassium	4510	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Silver	7.7	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Sodium	2780	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Vanadium	41.2	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X2	MJ4F52	2005-04-13	Unk	Sediment	Zinc	20100	TRUE	mg/kg	98.7	1.3	17.0300007	430292	5407103	OU 1 South	-2.0503	6.0474	-0.1198	1
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Aluminum	11300	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Antimony	4.2	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Arsenic	9.8	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Barium	314	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Cadmium	4.2	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Calcium	12600	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Chromium	28.2	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Cobalt	10.1	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Copper	85.1	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Iron	25700	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Lead	171	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Magnesium	9930	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Manganese	459	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Mercury	0.55	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Nickel	23	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Potassium	2230	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Silver	1.8	FALSE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Sodium	262	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Thallium	4.4	FALSE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Vanadium	35	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM722X3	MJ4F53	2005-04-13	Unk	Sediment	Zinc	809	TRUE	mg/kg	28.54122623	71.45877377	125.5100021	430264	5407217	OU 1 South	-1.9102	-2.2044	0.4673	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Aluminum	20100	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Antimony	4.2	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Arsenic	12.2	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Barium	350	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Beryllium	1.8	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Cadmium	4.9	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Calcium	10500	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Chromium	45.9	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Cobalt	14.5	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Copper	128	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Iron	33300	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Lead	274	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Magnesium	10800	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Manganese	820	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Mercury	1.4	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Nickel	31.3	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Potassium	2990	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Silver	2.6	FALSE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Sodium	503	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Thallium	6.5	FALSE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Vanadium	54.3	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM678X5	MJ4F54	2005-04-13	Unk	Sediment	Zinc	663	TRUE	mg/kg	1.605836067	98.39416393	346.8999939	412274	5354980	OU 2 Upper Laucustrine CSM Unit	-1.5225	-2.1608	1.4365	2
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Aluminum	10600	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Antimony	36.2	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Arsenic	25.6	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Barium	904	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Beryllium	0.84	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Cadmium	1.2	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Calcium	32800	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Chromium	64.9	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Cobalt	32.7	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Copper	1100	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Iron	89700	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Lead	192	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Magnesium	5820	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Manganese	1800	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Mercury	0.057	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Nickel	12.1	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Potassium	1900	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Silver	3.8	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Sodium	1130	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Vanadium	26	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM736X3	MJ4F55	2005-04-13	Unk	Sediment	Zinc	7200	TRUE	mg/kg	85.80153497	9.998919037	109.8000031	444691	5420733	OU 1 North	-2.743	3.6585	0.0103	1
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Aluminum	10400	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Antimony	2	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Arsenic	3.9	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Barium	124	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Beryllium	1	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Cadmium	0.69	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Calcium	6400	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Chromium	22.8	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Cobalt	8.9	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Copper	25	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Iron	18800	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Lead	28	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Magnesium	6200	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Manganese	469	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Mercury	0.093	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Nickel	19.3	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Potassium	1860	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Silver	1.6	FALSE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Sodium	290	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Thallium	4	FALSE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Vanadium	32.3	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X6	MJ4F56	2005-04-13	Unk	Sediment	Zinc	127	TRUE	mg/kg	21.30623617	78.69376383	674.8400269	411948	5354929	OU 2 Upper Laucustrine CSM Unit	1.4226	-0.8337	1.0909	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Aluminum	6210	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Arsenic	2.3	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Barium	75.4	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Beryllium	0.66	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Cadmium	0.14	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Calcium	18300	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Chromium	15.5	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Cobalt	6.1	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Copper	11.6	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Iron	13100	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Lead	4.6	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Magnesium	4700	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Manganese	258	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Nickel	12.6	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Potassium	1280	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Silver	1.1	FALSE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Sodium	183	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Vanadium	25.2	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM678X7	MJ4F57	2005-04-13	Unk	Sediment	Zinc	36.9	TRUE	mg/kg	62.23292411	36.96669604	780.1699829	411844	5354907	OU 2 Upper Laucustrine CSM Unit	2.6343	-0.497	-0.6138	3
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Aluminum	22400	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Antimony	47.6	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Arsenic	49.5	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Barium	2100	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Beryllium	1.6	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Cadmium	0.94	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Calcium	75000	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Chromium	150	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Cobalt	59.3	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Copper	2870	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Iron	248000	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Magnesium	7080	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Manganese	4660	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Nickel	19.5	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Potassium	4900	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Silver	6.3	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Sodium	2810	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Vanadium	46.3	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM721X2	MJ4F58	2005-04-13	Unk	Sediment	Zinc	19200	TRUE	mg/kg	98.2	1.8	-46.3300018	428729	5407524	OU 1 South	-2.487	5.0444	0.0786	1
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Aluminum	18200	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Antimony	4	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Arsenic	9.5	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Barium	398	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Beryllium	1.7	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Cadmium	4.3	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Calcium	13900	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Chromium	41.5	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Cobalt	13.6	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Copper	126	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Iron	31200	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Lead	233	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Magnesium	11900	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Manganese	572	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Mercury	0.53	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Nickel	29.4	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Potassium	2720	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Silver	2.4	FALSE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Sodium	448	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Thallium	5.9	FALSE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Vanadium	50.7	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM677X2	MJ4F59	2005-04-13	Unk	Sediment	Zinc	671	TRUE	mg/kg	2.944107256	97.05589274	-42.3699989	412751	5353481	OU 2 Upper Laucustrine CSM Unit	-1.4814	-1.9526	0.917	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Aluminum	19300	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Antimony	4.2	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Arsenic	11.9	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Barium	357	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Beryllium	1.7	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Cadmium	8	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Calcium	9740	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Chromium	44.2	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Cobalt	14	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Copper	96.6	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Iron	31700	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Lead	379	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Magnesium	10600	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Manganese	721	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Mercury	2.4	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Nickel	32.2	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Potassium	2740	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Silver	2.7	FALSE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Sodium	450	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Thallium	6.7	FALSE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Vanadium	49.7	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X3	MJ4F60	2005-04-13	Unk	Sediment	Zinc	873	TRUE	mg/kg	1.64126612	97.65533411	-296.0400085	412919	5355088	OU 2 Upper Laucustrine CSM Unit	-2.1231	-2.7607	1.5678	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Aluminum	21500	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Antimony	6.4	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Arsenic	11	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Barium	391	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Beryllium	1.9	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Cadmium	5.7	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Calcium	10800	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Chromium	50.8	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Cobalt	15.8	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Copper	152	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Iron	36300	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Lead	310	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Magnesium	11200	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Manganese	655	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Mercury	0.88	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Nickel	34.8	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Potassium	3070	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Silver	2.8	FALSE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Sodium	473	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Thallium	6.9	FALSE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Vanadium	57.1	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM678X4	MJ4F61	2005-04-13	Unk	Sediment	Zinc	742	TRUE	mg/kg	0.696993634	99.30300637	-20.4200001	412643	5355046	OU 2 Upper Laucustrine CSM Unit	-1.5389	-2.1425	1.5254	2
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Aluminum	7310	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Arsenic	7.4	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Beryllium	0.47	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Cadmium	0.12	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Calcium	11000	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Chromium	20.3	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Cobalt	7.3	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Copper	19.8	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Iron	16800	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Lead	7.9	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Magnesium	5360	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Manganese	245	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Nickel	22.2	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Potassium	599	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Silver	1	FALSE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Sodium	135	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Vanadium	22	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM677X1	MJ4F62	2005-04-13	Unk	Sediment	Zinc	41.6	TRUE	mg/kg	92.75	6.25	-1637.329956	414311	5353830	OU 2 Upper Laucustrine CSM Unit	2.8303	-0.7253	-0.5619	3
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Aluminum	7290	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Arsenic	5.2	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Barium	107	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Beryllium	0.68	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Cadmium	0.65	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Calcium	6150	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Chromium	23.1	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Cobalt	6.4	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Copper	23.4	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Iron	15800	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Lead	32.6	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Magnesium	5810	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Manganese	163	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Mercury	0.037	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Nickel	17.8	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Potassium	970	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Silver	1.1	FALSE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Sodium	202	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Vanadium	30.9	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM736T1	MJ4F63	2005-04-13	Unk	Sediment	Zinc	170	TRUE	mg/kg	73.64453464	14.35198609	401.4500122	444038	5420792	OU 1 North	1.0028	-1.2803	0.3923	2
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Aluminum	4810	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Arsenic	2.2	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Barium	37.7	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Beryllium	0.37	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Cadmium	0.22	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Calcium	1580	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Chromium	9.6	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Cobalt	3.7	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Copper	7.4	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Iron	9720	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Lead	5.1	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Magnesium	2390	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Manganese	134	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Nickel	9	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Potassium	519	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Silver	1	FALSE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Sodium	87.7	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Vanadium	16.7	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B1	MJ4F64	2005-04-14	Unk	Sediment	Zinc	47.4	TRUE	mg/kg	97.4	2.6	1221.050049	406801	5324464	OU 2 Middle Laucustrine CSM Unit	2.1328	-1.3326	1.2868	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Aluminum	5810	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Arsenic	1.9	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Barium	53.3	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Beryllium	0.44	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Cadmium	0.11	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Calcium	1700	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Chromium	13.2	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Cobalt	4.1	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Copper	9	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Iron	9800	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Lead	5.4	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Magnesium	2590	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Manganese	157	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Nickel	10.2	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Potassium	719	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Silver	1.1	FALSE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Sodium	97.8	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Vanadium	16.2	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B2	MJ4F65	2005-04-14	Unk	Sediment	Zinc	33	TRUE	mg/kg	88.8764045	11.1235955	1178.390015	406846	5324463	OU 2 Middle Laucustrine CSM Unit	2.5892	-0.8826	1.3224	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Aluminum	2760	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Arsenic	0.97	FALSE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Barium	20.6	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Beryllium	0.21	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Cadmium	0.056	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Calcium	1670	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Chromium	5.7	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Cobalt	2.1	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Copper	4.9	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Iron	4930	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Lead	3.1	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Magnesium	1540	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Manganese	95.3	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Nickel	5.1	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Potassium	317	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Silver	0.97	FALSE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Sodium	58.3	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Vanadium	8.7	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM658B3	MJ4F66	2005-04-14	Unk	Sediment	Zinc	21.3	TRUE	mg/kg	96.1	3.9	1145.030029	406882	5324464	OU 2 Middle Laucustrine CSM Unit	2.1833	-1.0722	0.8341	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Aluminum	12200	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Antimony	1.5	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Arsenic	5.3	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Barium	117	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Beryllium	0.9	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Cadmium	0.74	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Calcium	4120	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Chromium	24.2	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Cobalt	10.4	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Copper	20	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Iron	21100	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Lead	19.7	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Magnesium	4970	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Manganese	383	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Mercury	0.031	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Nickel	21.1	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Potassium	2020	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Silver	1.2	FALSE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Sodium	173	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Vanadium	32.6	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B2	MJ4F69	2005-04-16	Unk	Sediment	Zinc	118	TRUE	mg/kg	48.45097606	51.54902394	345.4700012	414711	5347367	OU 2 Upper Laucustrine CSM Unit	2.2733	-0.6385	1.2836	3
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Aluminum	10200	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Antimony	1.1	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Arsenic	3.6	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Barium	77.7	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Beryllium	0.68	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Cadmium	1	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Calcium	2520	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Chromium	18	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Cobalt	6.9	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Copper	14.7	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Iron	16000	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Lead	33.7	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Magnesium	3700	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Manganese	167	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Mercury	0.053	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Nickel	15.5	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Potassium	1220	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Silver	1.2	FALSE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Sodium	115	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Thallium	3	FALSE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Vanadium	27.2	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM673B3	MJ4F70	2005-04-16	Unk	Sediment	Zinc	158	TRUE	mg/kg	54.2	43	288.730011	414779	5347364	OU 2 Upper Laucustrine CSM Unit	1.2432	-1.7911	1.7866	2
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Aluminum	3560	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Arsenic	2.6	FALSE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Barium	30.4	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Beryllium	0.25	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Cadmium	0.14	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Calcium	3300	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Chromium	8.4	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Cobalt	3.3	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Copper	7.6	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Iron	7690	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Lead	3	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Manganese	126	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Nickel	7.7	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Potassium	454	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Silver	1	FALSE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Sodium	70	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Vanadium	13.3	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM676X1	MJ4F71	2005-04-14	Unk	Sediment	Zinc	25.9	TRUE	mg/kg	83.5	2.6	-1495.150024	414649	5352333	OU 2 Upper Laucustrine CSM Unit	2.3246	-1.2041	-0.0095	3
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Aluminum	6660	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Antimony	4.2	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Arsenic	10.9	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Barium	441	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Cadmium	4.7	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Calcium	27100	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Chromium	22	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Cobalt	8.1	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Copper	127	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Iron	24700	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Lead	216	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Magnesium	17200	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Manganese	391	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Mercury	0.37	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Nickel	16.8	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Potassium	1420	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Silver	1.3	FALSE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Sodium	155	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Vanadium	26.7	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X3	MJ4F72	2005-04-14	Unk	Sediment	Zinc	1520	TRUE	mg/kg	63.4090909	36.5909091	115.0199966	428701	5407707	OU 1 South	-3.3712	-2.1209	-1.2835	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Aluminum	6240	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Arsenic	4.3	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Barium	93.8	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Beryllium	0.44	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Cadmium	0.76	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Calcium	5260	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Chromium	15.7	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Cobalt	6.4	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Copper	31.8	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Iron	13800	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Lead	36.6	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Magnesium	5870	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Manganese	272	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Mercury	0.032	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Nickel	15	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Potassium	914	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Silver	0.92	FALSE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Sodium	146	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Vanadium	24.1	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM721X1	MJ4F73	2005-04-14	Unk	Sediment	Zinc	210	TRUE	mg/kg	83.13200582	7.664450814	-132.9700012	428623	5407458	OU 1 South	0.4195	-0.9891	0.427	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Aluminum	7150	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Arsenic	12.6	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Barium	853	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Beryllium	0.7	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Cadmium	6.7	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Calcium	30400	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Chromium	21.2	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Cobalt	5.9	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Copper	61.3	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Iron	24000	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Lead	335	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Magnesium	19800	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Manganese	326	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Mercury	0.59	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Nickel	19.8	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Potassium	1160	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Silver	1.1	FALSE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Sodium	150	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Vanadium	30.5	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM718X1	MJ4F74	2005-04-14	Unk	Sediment	Zinc	1180	TRUE	mg/kg	44.63477894	52.34935762	-321.1600037	426323	5404743	OU 1 South	-3.9202	-2.9001	-1.9717	2
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Aluminum	7530	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Antimony	5.5	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Arsenic	24.8	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Barium	300	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Beryllium	0.68	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Cadmium	1.7	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Calcium	16200	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Chromium	45.2	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Cobalt	9	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Copper	242	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Iron	54800	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Lead	450	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Magnesium	7780	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Manganese	641	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Mercury	0.45	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Nickel	15.3	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Potassium	1120	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Silver	1.2	FALSE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Sodium	295	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Thallium	3	FALSE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Vanadium	68.5	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM735X3	MJ4F75	2005-04-14	Unk	Sediment	Zinc	2370	TRUE	mg/kg	67.28612624	12.68824095	96.9199982	443996	5420002	OU 1 North	-2.7518	-0.5997	0.0644	1
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Aluminum	13400	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Arsenic	4.7	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Barium	228	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Beryllium	1.1	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Cadmium	2.3	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Calcium	8340	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Chromium	29.8	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Cobalt	10.2	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Copper	74	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Iron	24500	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Lead	113	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Magnesium	8170	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Manganese	482	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Mercury	0.5	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Nickel	22.8	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Potassium	1970	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Silver	2.5	FALSE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Sodium	307	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Thallium	6.3	FALSE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Vanadium	36.3	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM676X2	MJ4F78	2005-04-14	Unk	Sediment	Zinc	366	TRUE	mg/kg	0.454173858	99.31873921	31.6700001	412934	5351915	OU 2 Upper Laucustrine CSM Unit	-0.8959	-1.758	1.322	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Aluminum	10500	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Arsenic	3.8	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Barium	85.9	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Beryllium	0.87	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Cadmium	1.8	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Calcium	3240	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Chromium	30.3	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Cobalt	9.5	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Copper	20.1	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Iron	18400	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Lead	41.5	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Magnesium	5040	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Manganese	148	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Mercury	0.063	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Nickel	25.1	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Potassium	1670	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Silver	1.2	FALSE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Sodium	151	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Vanadium	31.4	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X1	MJ4F79	2005-04-14	Unk	Sediment	Zinc	210	TRUE	mg/kg	44.76674702	41.45886929	-474.5400085	415416	5347886	OU 2 Upper Laucustrine CSM Unit	1.2424	-2.1491	2.0293	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Aluminum	15900	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Arsenic	5.9	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Barium	213	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Cadmium	5.1	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Calcium	7170	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Chromium	38.5	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Cobalt	11.4	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Copper	67.6	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Iron	26300	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Lead	249	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Magnesium	8170	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Manganese	467	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Mercury	1.8	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Nickel	25.6	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Potassium	2470	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Silver	2.9	FALSE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Sodium	379	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Thallium	7.2	FALSE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Vanadium	41.8	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X2	MJ4F80	2005-04-14	Unk	Sediment	Zinc	488	TRUE	mg/kg	8.41023776	91.36245852	1.85	414994	5347644	OU 2 Upper Laucustrine CSM Unit	-1.5045	-2.7467	2.0091	2
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Aluminum	8080	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Arsenic	4.2	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Barium	71.9	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Beryllium	0.59	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Cadmium	0.12	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Calcium	6380	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Chromium	22.9	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Cobalt	7.8	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Copper	18.4	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Iron	17900	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Lead	6	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Magnesium	5290	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Manganese	333	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Mercury	0.017	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Nickel	20.1	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Potassium	930	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Silver	1.1	FALSE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Sodium	146	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Vanadium	31	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM673X3	MJ4F81	2005-04-14	Unk	Sediment	Zinc	40.3	TRUE	mg/kg	47.6	52.4	356.0799866	414651	5347517	OU 2 Upper Laucustrine CSM Unit	3.6402	0.3154	0.1275	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Aluminum	7590	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Arsenic	3.3	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Barium	63.1	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Beryllium	0.57	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Cadmium	0.35	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Calcium	4070	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Chromium	17.7	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Cobalt	6.5	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Copper	12.1	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Iron	15300	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Lead	14.5	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Magnesium	3950	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Manganese	204	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Mercury	0.013	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Nickel	15.9	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Potassium	1010	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Silver	1.1	FALSE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Sodium	119	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Vanadium	24.8	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM670X1	MJ4F82	2005-04-14	Unk	Sediment	Zinc	63.8	TRUE	mg/kg	72.39111254	26.20518168	-290.75	414094	5342632	OU 2 Upper Laucustrine CSM Unit	2.6227	-0.5953	0.8524	3
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Aluminum	6390	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Arsenic	7.5	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Barium	272	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Beryllium	0.66	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Cadmium	2.5	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Calcium	17800	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Chromium	20.8	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Cobalt	7.6	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Copper	166	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Iron	24700	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Lead	98.7	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Magnesium	9860	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Manganese	441	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Mercury	0.19	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Nickel	11.7	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Potassium	1060	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Silver	1.7	FALSE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Sodium	194	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Thallium	4.3	FALSE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Vanadium	21.6	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X2	MJ4F83	2005-04-14	Unk	Sediment	Zinc	1240	TRUE	mg/kg	78.85311851	21.14688149	-48.0999985	426040	5404747	OU 1 South	-2.692	-0.8976	-0.4688	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Aluminum	9520	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Arsenic	5.4	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Barium	321	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Beryllium	0.95	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Cadmium	2.4	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Calcium	10700	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Chromium	26	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Cobalt	9.7	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Copper	84.1	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Iron	20600	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Lead	114	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Magnesium	9140	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Manganese	340	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Mercury	0.29	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Nickel	20.3	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Potassium	1700	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Silver	1.3	FALSE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Sodium	234	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Vanadium	35.7	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM718X3	MJ4F84	2005-04-14	Unk	Sediment	Zinc	545	TRUE	mg/kg	49.87078016	46.69681796	335.7600098	425570	5404742	OU 1 South	-1.5329	-1.7958	0.4912	2
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Aluminum	6470	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Arsenic	4.2	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Barium	95	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Beryllium	0.46	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Cadmium	0.46	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Calcium	43700	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Chromium	14.1	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Cobalt	5.7	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Copper	14.3	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Iron	12200	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Lead	20.3	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Magnesium	4400	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Manganese	269	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Mercury	0.024	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Nickel	12.9	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Potassium	1230	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Silver	1.1	FALSE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Sodium	117	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Vanadium	19.6	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM715X3	MJ4F85	2005-04-14	Unk	Sediment	Zinc	94.4	TRUE	mg/kg	73.13201937	22.34745746	163.6199951	422792	5401468	OU 1 South	0.9987	-0.6984	-1.6672	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Aluminum	7350	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Antimony	0.53	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Arsenic	3.9	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Barium	62.4	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Beryllium	0.43	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Cadmium	0.25	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Calcium	1660	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Chromium	11.2	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Cobalt	4.7	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Copper	6	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Iron	13100	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Lead	13.2	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Magnesium	3420	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Manganese	136	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Mercury	0.032	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Nickel	9.4	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Potassium	1240	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Silver	1	FALSE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Sodium	74.9	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Vanadium	14.3	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1c	MJ4F88	2005-04-15	Unk	Sediment	Zinc	149	TRUE	mg/kg	75.35296652	20.1378799	-669.0800171	399397	5309280	OU 2 Middle Laucustrine CSM Unit	2.036	-1.1845	0.9839	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Aluminum	7890	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Antimony	1.3	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Arsenic	3.4	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Barium	67.5	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Beryllium	0.55	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Cadmium	0.46	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Calcium	2030	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Chromium	12.1	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Cobalt	5.4	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Copper	8.9	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Iron	13800	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Lead	9	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Magnesium	3430	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Manganese	111	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Mercury	0.012	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Nickel	10.5	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Potassium	1360	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Silver	1.1	FALSE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Sodium	93.6	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Vanadium	18.5	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1L	MJ4F89	2005-04-15	Unk	Sediment	Zinc	116	TRUE	mg/kg	77.75842794	20.5300298	-709.7399902	399451	5309224	OU 2 Middle Laucustrine CSM Unit	2.3734	-1.0518	1.0667	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Aluminum	11600	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Antimony	1.3	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Arsenic	4.2	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Barium	114	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Beryllium	0.72	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Cadmium	0.29	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Calcium	2360	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Chromium	13.1	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Cobalt	6.2	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Copper	11.2	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Iron	16300	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Lead	9.5	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Magnesium	3610	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Manganese	254	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Mercury	0.007	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Nickel	10.8	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Potassium	1640	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Silver	1.1	FALSE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Sodium	111	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Vanadium	21.1	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B1R	MJ4F90	2005-04-15	Unk	Sediment	Zinc	94.7	TRUE	mg/kg	71.44587067	21.89392105	-706.8800049	399416	5309352	OU 2 Middle Laucustrine CSM Unit	2.8029	0.0021	0.8783	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Aluminum	11400	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Antimony	0.89	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Arsenic	5.6	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Barium	112	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Beryllium	0.75	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Cadmium	0.51	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Calcium	2630	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Chromium	14.4	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Cobalt	6.6	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Copper	13.4	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Iron	16300	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Lead	16.8	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Magnesium	4120	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Manganese	215	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Mercury	0.033	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Nickel	12.3	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Potassium	2000	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Silver	1.1	FALSE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Sodium	108	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Vanadium	21.4	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2c	MJ4F91	2005-04-15	Unk	Sediment	Zinc	143	TRUE	mg/kg	64.72092031	35.27907969	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.866	-1.1056	0.9506	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Aluminum	9680	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Antimony	0.79	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Arsenic	4.3	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Barium	91.4	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Cadmium	0.37	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Calcium	2160	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Chromium	15.3	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Cobalt	6.4	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Copper	10.3	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Iron	16000	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Lead	16.1	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Magnesium	3920	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Manganese	184	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Mercury	0.018	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Nickel	12.3	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Potassium	1850	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Silver	0.93	FALSE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Sodium	91.6	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Vanadium	21.5	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2L	MJ4F92	2005-04-15	Unk	Sediment	Zinc	129	TRUE	mg/kg	74.15939218	24.83026188	-559.4500122	399303	5309198	OU 2 Middle Laucustrine CSM Unit	2.3386	-0.9088	1.1785	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Aluminum	10900	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Antimony	1.2	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Arsenic	6.3	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Barium	95.5	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Beryllium	0.7	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Cadmium	0.46	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Calcium	2210	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Chromium	13.1	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Cobalt	6	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Copper	10.5	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Iron	15500	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Lead	22.5	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Magnesium	3630	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Manganese	172	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Mercury	0.035	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Nickel	10.7	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Potassium	1670	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Silver	1.1	FALSE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Sodium	109	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Vanadium	20.2	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B2R	MJ4F93	2005-04-15	Unk	Sediment	Zinc	156	TRUE	mg/kg	73.28003876	22.48062016	-587.789978	399291	5309350	OU 2 Middle Laucustrine CSM Unit	1.7014	-1.2903	1.0186	3
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Aluminum	8950	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Antimony	1	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Arsenic	3.2	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Barium	83.8	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Beryllium	0.65	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Cadmium	0.98	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Calcium	2740	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Chromium	14.3	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Cobalt	6.1	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Copper	13.5	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Iron	14000	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Lead	31.2	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Magnesium	3690	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Manganese	218	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Mercury	0.073	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Nickel	12.2	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Potassium	1540	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Silver	1.2	FALSE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Sodium	142	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Vanadium	19.4	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3c	MJ4F94	2005-04-15	Unk	Sediment	Zinc	185	TRUE	mg/kg	60.96569663	38.62786539	-473.3099976	399197	5309270	OU 2 Middle Laucustrine CSM Unit	0.814	-1.5921	1.6084	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Aluminum	12300	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Antimony	1.8	FALSE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Arsenic	4.5	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Barium	106	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Beryllium	0.92	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Cadmium	2	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Calcium	2990	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Chromium	18.2	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Cobalt	7.7	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Copper	20.5	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Iron	17400	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Lead	119	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Magnesium	4260	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Manganese	292	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Mercury	0.27	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Nickel	15	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Potassium	2030	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Silver	1	FALSE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Sodium	167	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Vanadium	23	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM642B3R	MJ4F97	2005-04-15	Unk	Sediment	Zinc	366	TRUE	mg/kg	48.92044751	50.25389093	-484.7099915	399183	5309344	OU 2 Middle Laucustrine CSM Unit	-0.3601	-2.336	2.171	2
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Aluminum	9170	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Antimony	1	FALSE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Arsenic	2.9	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Barium	91.2	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Beryllium	0.64	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Cadmium	0.6	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Calcium	2320	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Chromium	12.6	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Cobalt	5.6	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Copper	10.8	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Iron	13900	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Lead	22.1	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Magnesium	3350	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Manganese	186	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Mercury	0.037	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Nickel	10.6	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Potassium	1520	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Silver	1.2	FALSE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Sodium	117	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Vanadium	18	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM642BSF	MJ4F98	2005-04-15	Unk	Sediment	Zinc	139	TRUE	mg/kg	65.80663283	31.1839175	-565.8200073	399292	5309274	OU 2 Middle Laucustrine CSM Unit	1.3542	-1.208	1.449	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Aluminum	7780	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Antimony	1.2	FALSE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Arsenic	2.4	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Barium	72.9	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Beryllium	0.74	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Cadmium	0.26	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Calcium	3270	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Chromium	16.6	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Cobalt	6	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Copper	11.1	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Iron	14600	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Lead	9.6	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Magnesium	3130	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Manganese	183	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Mercury	0.007	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Nickel	12.3	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Potassium	1440	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Silver	1.1	FALSE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Sodium	127	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Vanadium	26.1	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM670X3	MJ4F99	2005-04-15	Unk	Sediment	Zinc	58.5	TRUE	mg/kg	56.62182176	43.37817824	346.2399902	413647	5343115	OU 2 Upper Laucustrine CSM Unit	3.1026	-0.1669	1.1993	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Aluminum	6270	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Antimony	0.69	FALSE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Arsenic	3.8	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Barium	43.2	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Beryllium	0.37	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Cadmium	0.077	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Calcium	10100	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Chromium	17.3	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Cobalt	5.6	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Copper	12.8	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Iron	14200	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Lead	4.9	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Magnesium	4790	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Manganese	219	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Mercury	0.005	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Nickel	18.4	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Potassium	663	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Silver	0.96	FALSE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Sodium	70.4	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Vanadium	19.3	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X1	MJ4FA0	2005-04-15	Unk	Sediment	Zinc	36.2	TRUE	mg/kg	94.21672177	5.583213094	-222.8999939	412037	5338817	OU 2 Upper Laucustrine CSM Unit	3.828	0.3195	-0.8453	3
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Aluminum	18000	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Antimony	2.8	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Arsenic	8.3	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Barium	244	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Cadmium	2.5	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Calcium	7710	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Chromium	36.8	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Cobalt	12.9	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Copper	82.8	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Iron	30200	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Lead	133	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Magnesium	9050	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Manganese	576	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Mercury	0.51	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Nickel	28.7	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Potassium	2760	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Silver	2.6	FALSE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Sodium	318	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Thallium	6.5	FALSE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Vanadium	46.3	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X2	MJ4FA1	2005-04-15	Unk	Sediment	Zinc	437	TRUE	mg/kg	3.701647233	96.29835277	-12.21	411826	5338879	OU 2 Upper Laucustrine CSM Unit	-0.4635	-1.8665	1.4841	2
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Aluminum	7740	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Antimony	0.84	FALSE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Arsenic	16.3	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Barium	69.3	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Beryllium	0.65	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Cadmium	0.2	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Calcium	9910	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Chromium	24.8	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Cobalt	10.1	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Copper	19.3	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Iron	19500	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Lead	11.1	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Magnesium	5920	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Manganese	353	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Mercury	0.014	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Nickel	23	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Potassium	1550	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Silver	1.1	FALSE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Sodium	115	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Vanadium	25.9	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM667X3	MJ4FA2	2005-04-15	Unk	Sediment	Zinc	62	TRUE	mg/kg	63.2	34.2	982.1500244	410585	5339127	OU 2 Upper Laucustrine CSM Unit	3.3967	-0.1067	-0.7434	3
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Aluminum	11600	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Antimony	2.3	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Arsenic	5.4	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Barium	248	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Beryllium	0.96	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Cadmium	3.3	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Calcium	10400	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Chromium	24.9	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Cobalt	8.9	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Copper	70.4	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Iron	22400	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Lead	127	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Magnesium	8330	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Manganese	298	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Mercury	0.41	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Nickel	20.5	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Potassium	1870	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Silver	1.7	FALSE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Sodium	201	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Thallium	4.1	FALSE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Vanadium	31.9	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM713X1	MJ4FA5	2005-04-15	Unk	Sediment	Zinc	563	TRUE	mg/kg	28.18694309	70.01272957	-223.1300049	422819	5398276	OU 1 South	-1.5815	-2.3036	0.7314	2
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Aluminum	14000	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Antimony	49.7	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Arsenic	74.4	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Barium	756	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Beryllium	0.96	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Cadmium	3.2	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Calcium	39500	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Chromium	60.7	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Cobalt	35	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Copper	1430	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Iron	149000	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Lead	2760	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Magnesium	6820	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Manganese	2430	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Mercury	0.18	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Nickel	14.1	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Potassium	3400	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Silver	0.99	FALSE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Sodium	1540	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Vanadium	42.3	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM734X3	MJ4FA6	2005-04-15	Unk	Sediment	Zinc	26600	TRUE	mg/kg	79.3	10.7	64.6399994	443303	5419362	OU 1 North	-4.4476	2.4	0.3638	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Aluminum	13200	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Antimony	46.3	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Arsenic	25.2	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Barium	1200	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Beryllium	0.99	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Cadmium	0.91	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Calcium	43000	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Chromium	88.1	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Cobalt	42.3	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Copper	1530	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Iron	143000	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Lead	204	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Magnesium	5260	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Manganese	2480	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Mercury	0.052	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Nickel	12.4	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Potassium	2690	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Silver	1.2	FALSE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Sodium	1380	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Thallium	3	FALSE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Vanadium	29.7	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X2	MJ4FA7	2005-04-15	Unk	Sediment	Zinc	10800	TRUE	mg/kg	97.6	2.4	116.8399963	441654	5418561	OU 1 North	-2.5659	4.6113	0.2398	1
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Aluminum	5950	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Antimony	9	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Arsenic	12.8	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Barium	275	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Beryllium	0.49	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Cadmium	7.5	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Calcium	51000	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Chromium	20.2	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Cobalt	7	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Copper	248	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Iron	35100	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Lead	289	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Magnesium	18300	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Manganese	690	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Mercury	0.4	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Nickel	10.9	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Potassium	1140	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Silver	1.1	FALSE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Sodium	211	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Vanadium	24.7	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM733X3	MJ4FA8	2005-04-15	Unk	Sediment	Zinc	3550	TRUE	mg/kg	82.5	16	127.3700027	441505	5418526	OU 1 North	-4.3927	-1.4778	-1.5506	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Aluminum	9500	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Antimony	4.8	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Arsenic	10	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Barium	432	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Beryllium	0.81	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Cadmium	3.6	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Calcium	17900	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Chromium	25.2	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Cobalt	9.4	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Copper	151	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Iron	29400	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Lead	188	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Magnesium	11800	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Manganese	418	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Mercury	0.37	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Nickel	18.2	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Potassium	1530	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Silver	1.4	FALSE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Sodium	179	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Thallium	3.4	FALSE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Vanadium	29.9	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM706X2	MJ4FA9	2005-04-15	Unk	Sediment	Zinc	1120	TRUE	mg/kg	55	45	-470.9899902	419961	5390526	OU 2 Transitional CSM Unit	-2.7501	-1.686	-0.4153	2
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Aluminum	16700	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Antimony	38.8	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Arsenic	26.7	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Barium	1270	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Cadmium	1.5	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Calcium	50300	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Chromium	88.2	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Cobalt	32	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Copper	1600	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Iron	170000	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Lead	291	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Magnesium	7440	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Manganese	3030	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Mercury	0.1	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Nickel	12.4	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Potassium	3650	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Silver	1.3	FALSE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Sodium	1350	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Vanadium	37.4	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM710X2	MJ4FB0	2005-04-15	Unk	Sediment	Zinc	13600	TRUE	mg/kg	91.2	8.8	35.1800003	424499	5393681	OU 1 South	-2.9874	3.8405	0.1773	1
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Aluminum	7520	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Antimony	1.1	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Arsenic	3.6	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Barium	80.3	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Beryllium	0.59	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Cadmium	0.63	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Calcium	6050	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Chromium	17.7	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Cobalt	6.7	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Copper	16.1	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Iron	15200	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Lead	15.8	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Magnesium	4520	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Manganese	194	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Mercury	0.03	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Nickel	15.9	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Potassium	1210	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Silver	1.1	FALSE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Sodium	147	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Vanadium	26.6	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B2	MJ4FB3	2005-04-16	Unk	Sediment	Zinc	90.3	TRUE	mg/kg	54.56478565	29.98856547	-541.0800171	414876	5349925	OU 2 Upper Laucustrine CSM Unit	1.7983	-1.0703	0.5379	3
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Aluminum	12300	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Antimony	1.6	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Arsenic	7	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Barium	152	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Beryllium	0.93	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Cadmium	2.4	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Calcium	5200	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Chromium	28	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Cobalt	10	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Copper	28.7	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Iron	22600	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Lead	102	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Magnesium	6530	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Manganese	526	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Mercury	0.21	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Nickel	23.8	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Potassium	2190	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Silver	1.2	FALSE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Sodium	245	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Vanadium	35.6	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM675B3	MJ4FB4	2005-04-16	Unk	Sediment	Zinc	295	TRUE	mg/kg	12.29544845	86.3632299	-451.4500122	414781	5349873	OU 2 Upper Laucustrine CSM Unit	0.0961	-1.8048	1.5053	2
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Aluminum	13900	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Antimony	2.6	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Arsenic	4.5	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Barium	160	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Cadmium	0.99	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Calcium	6550	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Chromium	29.9	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Cobalt	10.2	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Copper	37.8	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Iron	24400	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Lead	38.5	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Magnesium	7370	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Manganese	357	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Mercury	0.085	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Nickel	22	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Potassium	1760	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Silver	1.8	FALSE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Sodium	265	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Thallium	4.4	FALSE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Vanadium	42.9	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X5	MJ4FB7	2005-04-16	Unk	Sediment	Zinc	173	TRUE	mg/kg	32.9226628	67.0773372	328.25	418945	5391336	OU 2 Transitional CSM Unit	1.204	-1.107	1.2531	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Aluminum	12300	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Antimony	2.2	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Arsenic	3.9	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Barium	137	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Cadmium	0.95	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Calcium	6250	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Chromium	28	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Cobalt	9.2	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Copper	34	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Iron	21900	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Lead	31.1	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Magnesium	6630	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Manganese	307	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Mercury	0.079	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Nickel	20	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Potassium	1640	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Silver	2.4	FALSE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Sodium	226	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Thallium	6	FALSE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Vanadium	40.3	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706X6	MJ4FB8	2005-04-16	Unk	Sediment	Zinc	160	TRUE	mg/kg	35.52361396	64.06570842	764.6300049	418477	5391720	OU 2 Transitional CSM Unit	1.2604	-1.201	1.2712	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Aluminum	14500	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Antimony	1.8	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Arsenic	3.8	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Barium	126	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Cadmium	0.23	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Calcium	7120	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Chromium	32.2	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Cobalt	10.5	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Copper	28.6	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Iron	26500	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Lead	11.4	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Magnesium	7320	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Manganese	377	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Mercury	0.035	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Nickel	22.2	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Potassium	1570	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Silver	2.7	FALSE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Sodium	225	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Thallium	6.6	FALSE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Vanadium	48.2	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706T1	MJ4FB9	2005-04-16	Unk	Sediment	Zinc	78.4	TRUE	mg/kg	19.01612236	80.36378669	1502.810059	417748	5392155	OU 2 Transitional CSM Unit	3.1579	-0.0779	0.9123	3
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Aluminum	15800	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Antimony	13.6	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Arsenic	21.3	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Barium	666	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Beryllium	0.99	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Cadmium	1.2	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Calcium	36100	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Chromium	44	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Cobalt	19.9	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Copper	819	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Iron	111000	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Lead	412	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Magnesium	7390	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Manganese	2260	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Mercury	0.047	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Nickel	9.2	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Potassium	3190	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Silver	1	FALSE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Sodium	1350	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Vanadium	39	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X4	MJ4FC0	2005-04-16	Unk	Sediment	Zinc	10300	TRUE	mg/kg	95.4	4.6	-30.4400005	419352	5390993	OU 2 Transitional CSM Unit	-2.7776	3.127	0.1476	1
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Aluminum	5880	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Antimony	2.9	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Arsenic	6.2	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Barium	213	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Beryllium	0.44	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Cadmium	1.6	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Calcium	11300	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Chromium	16.7	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Cobalt	5.8	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Copper	53.1	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Iron	19000	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Lead	77.3	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Magnesium	8110	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Manganese	267	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Mercury	0.13	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Nickel	12.6	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Potassium	926	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Silver	1.3	FALSE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Sodium	124	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Vanadium	23.5	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706X3	MJ4FC2	2005-04-16	Unk	Sediment	Zinc	590	TRUE	mg/kg	81.39013106	18.60986894	-414.3900146	419765	5390624	OU 2 Transitional CSM Unit	-1.7368	-1.4868	-0.5818	2
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Aluminum	5100	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Arsenic	2.3	FALSE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Barium	50.2	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Beryllium	0.46	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Cadmium	0.14	FALSE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Calcium	2610	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Chromium	16.1	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Cobalt	4.8	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Copper	8.9	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Iron	11700	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Lead	6.4	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Magnesium	3950	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Manganese	186	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Mercury	0.026	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Nickel	14.5	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Potassium	761	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Silver	1.2	FALSE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Sodium	109	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Thallium	3	FALSE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Vanadium	22.5	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM706T2	MJ4FC3	2005-04-16	Unk	Sediment	Zinc	37.2	TRUE	mg/kg	87.05478592	12.52668145	792.4500122	418128	5391549	OU 2 Transitional CSM Unit	3.149	-0.5964	0.8644	3
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Aluminum	9010	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Antimony	2.4	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Arsenic	9.4	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Barium	161	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Beryllium	0.75	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Cadmium	1.8	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Calcium	8780	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Chromium	21.5	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Cobalt	8.2	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Copper	48.8	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Iron	20900	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Lead	84.4	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Manganese	347	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Mercury	0.2	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Nickel	18.7	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Potassium	1390	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Silver	1.5	FALSE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Sodium	172	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Thallium	3.8	FALSE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Vanadium	30.7	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM708X1	MJ4FC4	2005-04-16	Unk	Sediment	Zinc	351	TRUE	mg/kg	56.22222222	33.33333333	-174.9400024	422751	5391423	OU 1 South	-0.6732	-1.843	0.2538	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Aluminum	10900	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Arsenic	7.2	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Barium	176	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Beryllium	0.68	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Cadmium	4.5	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Calcium	76500	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Chromium	25.2	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Cobalt	7.7	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Copper	39.9	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Iron	19000	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Lead	171	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Magnesium	6590	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Manganese	261	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Mercury	0.46	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Nickel	20	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Potassium	1400	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Silver	1.3	FALSE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Sodium	194	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Vanadium	26.4	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM710X1	MJ4FC5	2005-04-16	Unk	Sediment	Zinc	392	TRUE	mg/kg	48.93627981	49.00324525	-646.7000122	425255	5393661	OU 1 South	-2.0445	-2.6544	-1.1399	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Aluminum	5620	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Antimony	1.8	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Arsenic	5.8	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Barium	201	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Beryllium	0.47	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Cadmium	1.8	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Calcium	11600	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Chromium	15.5	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Cobalt	4.8	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Copper	45.9	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Iron	18500	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Lead	122	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Magnesium	7980	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Manganese	212	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Mercury	0.26	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Nickel	11.8	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Potassium	890	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Silver	1.1	FALSE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Sodium	116	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Vanadium	28.6	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM732X3	MJ4FC7	2005-04-16	Unk	Sediment	Zinc	590	TRUE	mg/kg	68.30490664	16.33659365	361.8599854	440435	5417469	OU 1 North	-2.1951	-2.2222	-0.5059	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Aluminum	6520	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Antimony	5	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Arsenic	11	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Barium	671	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Beryllium	0.65	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Cadmium	5.2	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Calcium	42600	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Chromium	20	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Cobalt	7.1	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Copper	136	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Iron	28900	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Lead	260	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Magnesium	23000	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Manganese	448	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Mercury	0.27	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Nickel	15.3	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Potassium	1250	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Silver	1.2	FALSE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Sodium	181	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Thallium	3	FALSE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Vanadium	28.9	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM731X3	MJ4FC8	2005-04-16	Unk	Sediment	Zinc	1710	TRUE	mg/kg	80.71570127	19.28429873	145.9299927	439493	5416066	OU 1 North	-3.8594	-1.8324	-2.0652	2
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Aluminum	17700	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Antimony	37.8	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Arsenic	32.6	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Barium	1270	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Cadmium	0.44	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Calcium	53900	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Chromium	97.4	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Cobalt	40.6	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Copper	1710	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Iron	159000	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Lead	476	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Magnesium	7410	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Manganese	3100	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Mercury	0.099	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Nickel	12.5	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Potassium	3280	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Silver	1	FALSE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Sodium	1720	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Vanadium	38	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM732X1	MJ4FC9	2005-04-16	Unk	Sediment	Zinc	13800	TRUE	mg/kg	94.90369181	2.889245586	-400.8200073	441149	5417071	OU 1 North	-2.6581	4.435	0.0392	1
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Aluminum	5360	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Antimony	8.9	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Arsenic	8.9	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Barium	435	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Cadmium	2.2	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Calcium	21100	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Chromium	20.7	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Cobalt	7.6	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Copper	202	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Iron	27300	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Lead	146	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Magnesium	8040	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Manganese	443	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Mercury	0.68	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Nickel	12.4	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Potassium	1260	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Silver	1.1	FALSE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Sodium	234	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Vanadium	24.2	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM731X1	MJ4FD0	2005-04-18	Unk	Sediment	Zinc	1710	TRUE	mg/kg	81.63265306	9.274600929	-202.75	439865	5415998	OU 1 North	-3.64	-0.9167	-0.7484	2
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Aluminum	16200	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Antimony	21.8	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Arsenic	21.1	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Barium	743	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Beryllium	1.1	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Cadmium	1	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Calcium	39500	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Chromium	51.7	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Cobalt	22.1	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Copper	922	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Iron	120000	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Lead	329	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Magnesium	8440	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Manganese	2230	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Mercury	0.091	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Nickel	11.4	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Potassium	3020	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Silver	1.1	FALSE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Sodium	1260	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Vanadium	37.3	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM707X2	MJ4FD1	2005-04-18	Unk	Sediment	Zinc	9980	TRUE	mg/kg	86.31912039	13.68087961	60.3800011	420950	5391145	OU 2 Transitional CSM Unit	-2.727	3.0243	0.083	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Aluminum	10700	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Antimony	20.5	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Arsenic	18.9	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Barium	727	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Beryllium	0.92	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Cadmium	2.3	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Calcium	30900	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Chromium	46.5	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Cobalt	18.1	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Copper	712	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Iron	80800	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Lead	302	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Magnesium	9330	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Manganese	1600	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Mercury	0.15	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Nickel	12.9	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Potassium	2310	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Silver	1.4	FALSE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Sodium	685	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Thallium	3.5	FALSE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Vanadium	32.5	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM708X2	MJ4FD2	2005-04-18	Unk	Sediment	Zinc	6340	TRUE	mg/kg	89.54701218	10.45298782	-2.55	422652	5391660	OU 1 South	-3.2879	1.7611	-0.0601	1
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Aluminum	7160	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Arsenic	5.9	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Barium	61	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Beryllium	0.47	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Cadmium	0.064	FALSE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Calcium	11500	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Chromium	9.6	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Cobalt	14.2	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Copper	11.5	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Iron	14200	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Lead	6.2	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Magnesium	6530	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Manganese	334	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Nickel	8.5	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Potassium	1350	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Silver	0.93	FALSE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Sodium	97.6	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Vanadium	13.4	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B1	MJ4FD3	2005-04-18	Unk	Sediment	Zinc	35.5	TRUE	mg/kg	86.05335308	6.141807921	-355.8599854	394870	5298228	OU 2 Middle Laucustrine CSM Unit	3.1068	0.087	-1.0647	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Aluminum	6900	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Arsenic	6.7	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Barium	33.6	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Beryllium	0.43	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Cadmium	0.058	FALSE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Calcium	15100	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Chromium	9.1	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Cobalt	3.5	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Copper	10	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Iron	12600	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Lead	4.7	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Magnesium	6240	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Manganese	224	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Nickel	7.8	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Potassium	1410	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Silver	0.97	FALSE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Sodium	97.2	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Vanadium	10.8	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B2	MJ4FD4	2005-04-18	Unk	Sediment	Zinc	30.1	TRUE	mg/kg	96.1	2.2	-345.7999878	394879	5298240	OU 2 Middle Laucustrine CSM Unit	2.9215	-0.9212	-1.8225	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Aluminum	5070	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Arsenic	5.9	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Barium	34.9	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Beryllium	0.32	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Cadmium	0.47	FALSE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Calcium	10300	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Chromium	6.2	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Cobalt	3	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Copper	7.3	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Iron	10200	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Lead	4.4	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Magnesium	5320	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Manganese	217	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Mercury	0.098	FALSE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Nickel	6.1	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Potassium	1140	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Silver	0.94	FALSE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Sodium	57.2	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Vanadium	8.4	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM633B3	MJ4FD5	2005-04-18	Unk	Sediment	Zinc	26.5	TRUE	mg/kg	91.1	3	-335.019989	394888	5298253	OU 2 Middle Laucustrine CSM Unit	1.7754	-1.8649	-1.605	3
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Aluminum	7560	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Arsenic	8.8	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Barium	81.8	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Beryllium	0.53	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Cadmium	0.54	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Calcium	5160	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Chromium	18	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Cobalt	6.1	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Copper	20	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Iron	18900	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Lead	35.9	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Magnesium	5460	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Manganese	205	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Mercury	0.068	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Nickel	18.4	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Potassium	962	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Silver	1.1	FALSE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Sodium	103	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Thallium	0.85	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Vanadium	29.7	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X1	MJ4FD6	2005-04-18	Unk	Sediment	Zinc	157	TRUE	mg/kg	70.18461167	26.99995978	-444.9200134	420974	5390636	OU 2 Transitional CSM Unit	1.0848	-1.6267	0.165	2
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Aluminum	23600	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Arsenic	4.2	FALSE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Barium	319	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Beryllium	2.4	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Cadmium	0.57	FALSE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Calcium	15600	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Chromium	52.8	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Cobalt	20.9	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Copper	46.6	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Iron	39000	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Lead	23.6	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Magnesium	14900	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Manganese	1060	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Mercury	0.038	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Nickel	48.8	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Potassium	5260	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Silver	1.1	FALSE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Sodium	466	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Vanadium	71.4	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM707X3	MJ4FD7	2005-04-18	Unk	Sediment	Zinc	139	TRUE	mg/kg	0.979847797	99.0201522	1145.079956	420866	5392332	OU 2 Transitional CSM Unit	3.0332	0.1698	0.9003	3
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Aluminum	4970	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Arsenic	2.8	FALSE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Barium	94.6	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Beryllium	0.49	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Cadmium	0.52	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Calcium	5310	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Chromium	12.9	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Cobalt	4.7	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Copper	26	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Iron	12000	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Lead	33.6	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Magnesium	4360	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Manganese	208	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Mercury	0.2	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Nickel	9.4	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Potassium	779	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Silver	0.98	FALSE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Sodium	102	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Vanadium	21.3	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730X1	MJ4FD8	2005-04-18	Unk	Sediment	Zinc	249	TRUE	mg/kg	88.6	7.4	-207.2100067	438900	5414908	OU 1 North	-0.4884	-1.5861	0.5842	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Aluminum	7680	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Arsenic	2.3	FALSE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Barium	161	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Beryllium	0.94	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Cadmium	1.6	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Calcium	12400	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Chromium	14.8	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Cobalt	6.2	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Copper	41.6	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Iron	15400	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Lead	58.1	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Magnesium	7480	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Manganese	225	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Mercury	0.072	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Nickel	12	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Potassium	1500	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Silver	1.3	FALSE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Sodium	144	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Vanadium	25.4	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM730T1	MJ4FD9	2005-04-18	Unk	Sediment	Zinc	495	TRUE	mg/kg	61.52351655	38.47648345	-250.2299957	437908	5413907	OU 1 North	-0.9743	-1.7357	0.3823	2
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Aluminum	5340	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Antimony	5.4	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Arsenic	4.5	FALSE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Barium	210	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Beryllium	0.58	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Cadmium	0.69	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Calcium	12000	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Chromium	18.7	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Cobalt	7.8	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Copper	181	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Iron	27700	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Lead	126	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Magnesium	5670	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Manganese	550	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Mercury	0.23	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Nickel	9.5	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Potassium	1020	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Silver	0.96	FALSE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Sodium	215	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Thallium	0.68	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Vanadium	20.1	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X3	MJ4FE0	2005-04-18	Unk	Sediment	Zinc	1800	TRUE	mg/kg	88.73105587	6.967438604	112.3000031	437624	5414133	OU 1 North	-2.619	0.2137	0.4694	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Aluminum	18900	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Antimony	55.7	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Arsenic	15.4	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Barium	1920	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Beryllium	1.7	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Cadmium	0.55	FALSE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Calcium	64200	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Chromium	141	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Cobalt	70.1	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Copper	2470	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Iron	203000	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Lead	264	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Magnesium	6020	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Manganese	4190	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Mercury	0.008	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Nickel	14.5	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Potassium	4260	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Silver	1.1	FALSE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Sodium	2400	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Vanadium	41.2	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729X2	MJ4FE1	2005-04-18	Unk	Sediment	Zinc	16600	TRUE	mg/kg	98.6	1.4	-59.1100006	437752	5414019	OU 1 North	-1.7482	6.3497	0.7581	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Aluminum	4200	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Antimony	6.7	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Arsenic	1.7	FALSE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Barium	172	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Beryllium	0.47	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Cadmium	1	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Calcium	12500	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Chromium	12.5	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Cobalt	5.5	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Copper	118	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Iron	15600	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Lead	61.5	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Magnesium	6290	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Manganese	290	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Mercury	0.068	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Nickel	7.1	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Potassium	836	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Silver	1.2	FALSE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Sodium	130	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Thallium	3	FALSE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Vanadium	15.9	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM729T2	MJ4FE2	2005-04-18	Unk	Sediment	Zinc	870	TRUE	mg/kg	56.31149676	9.721248071	-155.2400055	437811	5413935	OU 1 North	-2.385	-0.3671	0.1334	1
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Aluminum	7280	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Arsenic	11.2	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Barium	65.6	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Beryllium	0.62	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Cadmium	0.5	FALSE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Calcium	14300	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Chromium	19.1	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Cobalt	7.8	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Copper	15.8	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Iron	19600	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Lead	10	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Magnesium	6140	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Manganese	320	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Mercury	0.006	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Nickel	18.5	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Potassium	1260	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Silver	1	FALSE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Sodium	82.9	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Vanadium	21.8	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X3	MJ4FE4	2005-04-19	Unk	Sediment	Zinc	44.6	TRUE	mg/kg	62.79339761	37.20660239	609.3200073	405024	5322901	OU 2 Middle Laucustrine CSM Unit	3.0445	-0.3356	-1.1181	3
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Aluminum	9450	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Arsenic	6.8	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Barium	134	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Beryllium	0.95	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Cadmium	0.97	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Calcium	7840	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Chromium	23.1	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Cobalt	9	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Copper	24.4	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Iron	19300	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Lead	59.8	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Magnesium	6430	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Manganese	523	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Mercury	0.19	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Nickel	21.3	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Potassium	1660	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Silver	1.5	FALSE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Sodium	162	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Thallium	3.8	FALSE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Vanadium	29.9	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X2	MJ4FE5	2005-04-19	Unk	Sediment	Zinc	166	TRUE	mg/kg	30.72261268	69.27738732	-46.75	405604	5322330	OU 2 Middle Laucustrine CSM Unit	0.5602	-1.5151	0.6846	2
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Aluminum	7400	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Arsenic	8.5	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Barium	67.3	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Beryllium	0.66	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Cadmium	0.47	FALSE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Calcium	13100	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Chromium	12.6	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Cobalt	5.8	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Copper	9.8	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Iron	16200	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Lead	7.9	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Magnesium	6810	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Manganese	348	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Nickel	11	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Potassium	1540	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Silver	0.95	FALSE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Sodium	73.3	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Vanadium	18.4	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3
2005 Phase 1 Sediment Sampling	RM655X1	MJ4FE6	2005-04-19	Unk	Sediment	Zinc	36.1	TRUE	mg/kg	84.72194338	14.87653082	-764.6699829	406123	5321731	OU 2 Middle Laucustrine CSM Unit	2.2557	-1.5397	-1.1501	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Aluminum	20800	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Arsenic	9.3	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Barium	270	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Beryllium	2	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Cadmium	3.1	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Calcium	6670	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Chromium	48	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Cobalt	16.2	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Copper	86.6	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Iron	36300	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Lead	160	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Magnesium	10600	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Manganese	1250	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Mercury	0.56	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Nickel	39	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Potassium	3440	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Silver	3	FALSE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Sodium	368	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Thallium	7.4	FALSE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Vanadium	52.7	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM652X2	MJ4FE7	2005-04-19	Unk	Sediment	Zinc	415	TRUE	mg/kg	0.229816377	99.77018362	-33.1599998	400904	5322266	OU 2 Middle Laucustrine CSM Unit	-0.1058	-1.5715	2.0198	2
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Aluminum	6270	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Arsenic	4	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Barium	45.6	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Cadmium	0.5	FALSE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Calcium	3880	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Chromium	9.8	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Cobalt	3.9	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Copper	6.7	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Iron	13100	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Lead	4.5	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Magnesium	4330	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Manganese	214	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Nickel	8.5	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Potassium	1080	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Silver	1	FALSE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Sodium	49.3	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Vanadium	14	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B1	MJ4FE8	2005-04-19	Unk	Sediment	Zinc	36.9	TRUE	mg/kg	93.2	6.8	-1108.319946	373449	5309835	OU 2 Lower Laucustrine CSM Unit	2.2671	-1.8587	0.1035	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Aluminum	8030	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Arsenic	4.9	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Barium	58.6	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Beryllium	0.68	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Cadmium	0.48	FALSE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Calcium	1760	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Chromium	11.2	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Cobalt	5	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Copper	8.6	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Iron	15500	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Lead	6.3	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Magnesium	4390	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Manganese	230	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Nickel	9.4	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Potassium	1410	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Silver	0.96	FALSE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Sodium	57.7	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Vanadium	17.2	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B2	MJ4FE9	2005-04-19	Unk	Sediment	Zinc	44.2	TRUE	mg/kg	87	12.3	-1020.849976	373385	5309904	OU 2 Lower Laucustrine CSM Unit	2.4909	-1.7515	1.0128	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Aluminum	8620	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Arsenic	4.7	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Barium	68.8	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Beryllium	0.74	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Cadmium	0.5	FALSE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Calcium	1940	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Chromium	12.5	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Cobalt	5.4	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Copper	9.1	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Iron	15600	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Lead	5.9	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Magnesium	4210	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Manganese	248	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Nickel	10.1	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Potassium	1640	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Silver	1	FALSE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Sodium	74.7	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Vanadium	19.5	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM615B3	MJ4FF0	2005-04-19	Unk	Sediment	Zinc	39.2	TRUE	mg/kg	74.2	24.2	-928.7999878	373323	5309972	OU 2 Lower Laucustrine CSM Unit	2.6364	-1.5898	1.0725	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Aluminum	12400	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Arsenic	5.8	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Barium	156	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Cadmium	0.56	FALSE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Calcium	16600	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Chromium	30.2	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Cobalt	11.2	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Copper	23.4	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Iron	23600	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Lead	11	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Magnesium	8630	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Manganese	461	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Mercury	0.016	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Nickel	26.7	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Potassium	2230	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Silver	1.1	FALSE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Sodium	209	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Thallium	2.8	FALSE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Vanadium	36.2	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X1	MJ4FF1	2005-04-19	Unk	Sediment	Zinc	59.4	TRUE	mg/kg	1.855631843	98.14436816	-453.8999939	408657	5326594	OU 2 Upper Laucustrine CSM Unit	2.9925	-0.1724	-0.3283	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Aluminum	13400	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Arsenic	5.1	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Barium	163	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Cadmium	0.37	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Calcium	9340	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Chromium	31.6	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Cobalt	11.9	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Copper	35.1	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Iron	25200	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Lead	36.4	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Magnesium	8140	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Manganese	595	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Mercury	0.074	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Nickel	27.5	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Potassium	2250	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Silver	1.6	FALSE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Sodium	223	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Thallium	3.9	FALSE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Vanadium	38.5	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM658X2	MJ4FF2	2005-04-19	Unk	Sediment	Zinc	149	TRUE	mg/kg	1.642999648	98.35700035	-2.47	408203	5326594	OU 2 Upper Laucustrine CSM Unit	1.8674	-0.4433	0.7803	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Aluminum	10400	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Antimony	0.37	FALSE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Arsenic	6.3	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Barium	83.6	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Beryllium	0.62	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Cadmium	0.51	FALSE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Calcium	11600	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Chromium	39.9	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Cobalt	12	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Copper	17	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Iron	25000	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Lead	8.7	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Magnesium	7170	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Manganese	333	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Nickel	40.1	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Potassium	1180	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Selenium	3.5	FALSE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Silver	1	FALSE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Sodium	99.3	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Vanadium	29.9	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X1	MJ4FF3	2005-04-19	Unk	Sediment	Zinc	79.8	TRUE	mg/kg	80.86888906	13.01076078	-260.3800049	411752	5333791	OU 2 Upper Laucustrine CSM Unit	2.8473	-1.0588	0.0647	3
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Aluminum	15300	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Antimony	3	FALSE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Arsenic	6.2	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Barium	202	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Cadmium	3.5	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Calcium	5890	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Chromium	38.5	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Cobalt	12.1	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Copper	70.2	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Iron	26100	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Lead	204	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Magnesium	7240	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Manganese	582	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Mercury	1.1	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Nickel	28.5	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Potassium	2460	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Selenium	7.2	FALSE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Silver	2.1	FALSE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Sodium	298	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Thallium	5.1	FALSE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Vanadium	41.2	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM664X2	MJ4FF4	2005-04-19	Unk	Sediment	Zinc	383	TRUE	mg/kg	10.42269832	89.57730168	38.2400017	411478	5333953	OU 2 Upper Laucustrine CSM Unit	-0.9555	-2.3579	2.1936	2
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Aluminum	9100	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Antimony	0.91	FALSE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Arsenic	7.7	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Barium	57.8	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Beryllium	0.54	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Cadmium	0.48	FALSE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Calcium	11300	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Chromium	38.9	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Cobalt	10	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Copper	28.2	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Iron	22600	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Lead	8.9	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Magnesium	8070	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Manganese	391	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Mercury	0.012	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Nickel	35.5	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Potassium	850	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Selenium	3.4	FALSE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Silver	0.96	FALSE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Sodium	137	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Vanadium	28.6	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM661X3	MJ4FF8	2005-04-19	Unk	Sediment	Zinc	62.3	TRUE	mg/kg	90.18036072	7.815631263	584.7999878	407339	5332448	OU 2 Upper Laucustrine CSM Unit	3.2768	-0.1798	-0.1916	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Aluminum	4670	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Antimony	6.3	FALSE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Arsenic	1.9	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Barium	39.3	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Beryllium	0.44	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Cadmium	0.53	FALSE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Calcium	2720	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Chromium	10.7	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Cobalt	4.4	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Copper	7.3	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Iron	10200	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Lead	4.5	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Magnesium	2760	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Manganese	137	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Nickel	10	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Potassium	726	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Selenium	3.7	FALSE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Silver	1	FALSE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Sodium	83.4	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Vanadium	14.8	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM652X3	MJ4FF9	2005-04-19	Unk	Sediment	Zinc	33.1	TRUE	mg/kg	83.37770099	14.71365285	457.3099976	400848	5322830	OU 2 Middle Laucustrine CSM Unit	2.0816	-1.6942	1.1004	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Aluminum	7150	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Antimony	1	FALSE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Arsenic	8.5	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Barium	41.1	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Beryllium	0.53	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Cadmium	0.52	FALSE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Calcium	5990	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Chromium	9	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Cobalt	3.7	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Copper	6.5	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Iron	14300	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Lead	6.1	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Magnesium	5360	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Manganese	226	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Nickel	7.5	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Potassium	1230	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Selenium	3.6	FALSE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Silver	1	FALSE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Sodium	73.5	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Vanadium	13.9	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B1	MJ4FG0	2005-04-19	Unk	Sediment	Zinc	39.7	TRUE	mg/kg	97.05042816	2.949571836	-843.4899902	355281	5310964	OU 2 Lower Laucustrine CSM Unit	2.2355	-1.9284	-0.7143	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Aluminum	7800	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Antimony	1.1	FALSE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Arsenic	7.5	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Barium	51.5	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Beryllium	0.6	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Cadmium	0.51	FALSE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Calcium	1810	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Chromium	9.7	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Cobalt	4.1	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Copper	5.5	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Iron	14900	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Lead	7.1	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Magnesium	5590	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Manganese	208	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Nickel	7.5	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Potassium	1470	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Selenium	3.6	FALSE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Silver	1	FALSE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Sodium	53.8	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Vanadium	14	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B2	MJ4FG1	2005-04-19	Unk	Sediment	Zinc	54.6	TRUE	mg/kg	93.8873152	6.112684797	-798.8099976	355282	5311014	OU 2 Lower Laucustrine CSM Unit	2.3761	-2.1335	0.4102	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Aluminum	8310	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Antimony	0.79	FALSE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Arsenic	10.3	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Barium	51	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Beryllium	0.64	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Cadmium	0.52	FALSE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Calcium	1960	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Chromium	9.6	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Cobalt	4.4	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Copper	7.1	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Iron	15400	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Lead	6.7	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Magnesium	5880	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Manganese	227	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Nickel	8.2	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Potassium	1610	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Selenium	3.6	FALSE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Silver	1	FALSE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Sodium	65.7	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Vanadium	14.8	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM600B3	MJ4FG2	2005-04-19	Unk	Sediment	Zinc	48	TRUE	mg/kg	95.78237284	4.217627159	-769.5200195	355283	5311047	OU 2 Lower Laucustrine CSM Unit	2.5103	-2.0766	0.2348	3
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Aluminum	10000	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Antimony	1.4	FALSE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Arsenic	4.9	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Barium	141	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Beryllium	1.1	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Cadmium	2	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Calcium	5470	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Chromium	22.8	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Cobalt	8.2	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Copper	25.9	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Iron	18900	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Lead	72.4	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Magnesium	5800	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Manganese	433	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Mercury	0.23	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Nickel	19.8	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Potassium	1950	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Selenium	4.6	FALSE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Silver	1.3	FALSE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Sodium	215	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Vanadium	31.2	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM704A1(X1)	MJ4FG3	2005-04-20	Unk	Sediment	Zinc	204	TRUE	mg/kg	50.81406201	49.18593799	-1625.439941	420356	5388552	OU 2 Transitional CSM Unit	0.0751	-1.9305	1.4538	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Aluminum	14000	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Antimony	3.5	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Arsenic	7.9	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Barium	546	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Cadmium	5.3	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Calcium	16000	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Chromium	34.9	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Cobalt	11.6	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Copper	164	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Iron	29800	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Lead	309	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Magnesium	11600	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Manganese	417	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Mercury	0.87	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Nickel	25.3	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Potassium	2110	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Selenium	7.1	FALSE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Silver	2	FALSE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Sodium	249	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Thallium	5.1	FALSE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Vanadium	40	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM698A1(X1)	MJ4FG4	2005-04-20	Unk	Sediment	Zinc	954	TRUE	mg/kg	10.87946002	89.12053998	-844.1500244	417291	5380325	OU 2 Upper Laucustrine CSM Unit	-2.7633	-2.3423	0.5481	2
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Aluminum	5310	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Antimony	21.2	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Arsenic	6.9	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Barium	415	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Beryllium	0.54	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Cadmium	1.5	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Calcium	20000	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Chromium	26.4	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Cobalt	13.6	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Copper	390	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Iron	35800	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Lead	141	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Magnesium	7440	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Manganese	718	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Mercury	0.15	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Nickel	9.7	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Potassium	1010	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Selenium	4.1	FALSE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Silver	1.2	FALSE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Sodium	368	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Thallium	1.1	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Vanadium	20.1	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A1(X1)	MJ4FG5	2005-04-20	Unk	Sediment	Zinc	2480	TRUE	mg/kg	91.89067315	8.109326853	-61.0499992	453909	5427642	OU 1 North	-3.2526	1.1348	-0.0879	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Aluminum	12300	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Antimony	29.6	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Arsenic	10.7	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Barium	1200	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Cadmium	0.62	FALSE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Calcium	38400	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Chromium	89.3	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Cobalt	50.1	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Copper	1540	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Iron	124000	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Lead	183	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Magnesium	3960	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Manganese	2410	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Mercury	0.048	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Nickel	11.2	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Potassium	2400	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Selenium	4.3	FALSE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Silver	0.71	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Sodium	1390	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Vanadium	28.3	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM744A2(X3)	MJ4FG6	2005-04-20	Unk	Sediment	Zinc	9940	TRUE	mg/kg	96.41735512	3.582644876	211.5399933	453634	5427669	OU 1 North	-2.4653	5.0749	1.0506	1
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Aluminum	5470	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Antimony	6.9	FALSE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Arsenic	1.3	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Barium	49.6	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Beryllium	0.46	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Cadmium	0.11	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Calcium	2390	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Chromium	9.1	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Cobalt	3.6	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Copper	10.8	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Iron	10400	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Lead	6.6	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Magnesium	3300	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Manganese	161	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Mercury	0.01	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Nickel	10.6	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Potassium	714	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Selenium	1.4	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Silver	1.2	FALSE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Sodium	172	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Vanadium	18.2	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM686A1(X3)	MJ4FG9	2005-04-21	Unk	Sediment	Zinc	40.7	TRUE	mg/kg	88.61697441	6.476549045	580.6500244	410390	5365916	OU 2 Upper Laucustrine CSM Unit	2.8107	-0.041	0.9687	3
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Aluminum	11000	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Antimony	1.4	FALSE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Arsenic	5.7	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Barium	160	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Beryllium	0.91	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Cadmium	2.1	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Calcium	4170	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Chromium	21.2	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Cobalt	8.4	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Copper	27	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Iron	19600	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Lead	136	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Magnesium	4480	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Manganese	291	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Mercury	0.41	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Nickel	21	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Potassium	1870	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Selenium	4.4	FALSE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Silver	1.2	FALSE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Sodium	120	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Vanadium	27.6	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM687A1	MJ4FH0	2005-04-20	Unk	Sediment	Zinc	281	TRUE	mg/kg	30.8	60	-867.0300293	411310	5367334	OU 2 Upper Laucustrine CSM Unit	-0.6439	-2.5129	1.6356	2
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Aluminum	7540	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Antimony	7.4	FALSE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Arsenic	2.1	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Barium	78.3	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Beryllium	0.8	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Cadmium	0.13	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Calcium	4870	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Chromium	16.9	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Cobalt	6.7	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Copper	14.7	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Iron	15000	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Lead	12.3	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Magnesium	4020	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Manganese	319	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Mercury	0.034	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Nickel	15.1	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Potassium	1370	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Selenium	4.3	FALSE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Silver	1.2	FALSE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Sodium	165	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Vanadium	25.9	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM689A1(X3)	MJ4FH1	2005-04-20	Unk	Sediment	Zinc	62.6	TRUE	mg/kg	42.15886797	57.84113203	1338.130005	410843	5370995	OU 2 Upper Laucustrine CSM Unit	2.7028	-0.0732	1.0388	3
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Aluminum	7390	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Antimony	3.8	FALSE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Arsenic	4.5	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Barium	445	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Beryllium	0.97	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Cadmium	3.8	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Calcium	15000	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Chromium	21.3	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Cobalt	6.7	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Copper	78.8	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Iron	18800	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Lead	197	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Magnesium	10400	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Manganese	317	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Mercury	0.66	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Nickel	15.5	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Potassium	1600	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Selenium	7.7	FALSE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Silver	2.2	FALSE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Sodium	137	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Thallium	5.5	FALSE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Vanadium	26.3	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM706A1(X1)	MJ4FH2	2005-04-20	Unk	Sediment	Zinc	764	TRUE	mg/kg	23.89460997	76.10539003	-648.1599731	420234	5390314	OU 2 Transitional CSM Unit	-3.0605	-2.5426	-0.0443	2
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Aluminum	5560	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Antimony	14.1	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Arsenic	4.7	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Barium	398	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Beryllium	0.71	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Cadmium	1.7	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Calcium	18100	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Chromium	28.6	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Cobalt	11.8	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Copper	325	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Iron	34200	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Lead	142	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Magnesium	8140	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Manganese	613	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Mercury	0.12	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Nickel	9.9	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Potassium	1210	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Selenium	4.7	FALSE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Silver	1.3	FALSE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Sodium	251	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Vanadium	20.6	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM743A2(X3)	MJ4FH3	2005-04-20	Unk	Sediment	Zinc	2380	TRUE	mg/kg	91.09012204	8.809558444	157.8500061	453048	5426489	OU 1 North	-3.0649	0.666	0.2563	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Aluminum	22400	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Antimony	42.5	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Arsenic	12.8	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Barium	1570	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Beryllium	1.8	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Cadmium	4.4	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Calcium	67800	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Chromium	107	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Cobalt	41.2	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Copper	2170	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Iron	256000	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Lead	1150	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Magnesium	7630	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Manganese	4460	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Mercury	0.035	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Nickel	11	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Potassium	4580	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Selenium	5.2	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Silver	1.2	FALSE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Sodium	2130	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Vanadium	47.8	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH4	2005-04-23	Unk	Sediment	Zinc	23500	TRUE	mg/kg	96.21828147	3.781718527	2.53	422652	5391668	OU 1 South	-3.7626	4.3624	1.2744	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Aluminum	23000	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Antimony	28.5	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Arsenic	11	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Barium	1610	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Beryllium	1.9	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Cadmium	4.4	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Calcium	68700	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Chromium	109	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Cobalt	41.6	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Copper	2240	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Iron	266000	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Lead	1140	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Magnesium	7430	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Manganese	4690	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Mercury	0.021	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Nickel	11	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Potassium	4660	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Selenium	6.7	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Silver	1.1	FALSE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Sodium	2270	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Vanadium	48.9	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH5	2005-04-23	Unk	Sediment	Zinc	24800	TRUE	mg/kg	98.3	1.7	2.53	422652	5391668	OU 1 South	-3.6406	4.654	1.3965	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Aluminum	16300	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Antimony	16.9	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Arsenic	2.9	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Barium	1050	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Cadmium	3.9	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Calcium	52300	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Chromium	70	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Cobalt	28.1	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Copper	1330	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Iron	168000	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Lead	471	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Magnesium	9230	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Manganese	3040	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Mercury	0.029	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Nickel	9.6	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Potassium	3280	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Selenium	3.9	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Silver	0.93	FALSE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Sodium	1420	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Vanadium	36.4	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH6	2005-04-23	Unk	Sediment	Zinc	13800	TRUE	mg/kg	97.1	2.9	2.53	422652	5391668	OU 1 South	-3.4963	3.8985	1.531	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Aluminum	19700	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Antimony	38.7	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Arsenic	3.2	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Barium	1290	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Beryllium	1.6	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Cadmium	3.5	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Calcium	56900	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Chromium	88.1	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Cobalt	34.9	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Copper	1810	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Iron	227000	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Lead	524	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Magnesium	6700	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Manganese	3770	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Mercury	0.013	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Nickel	10.1	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Potassium	4000	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Selenium	4.8	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Silver	1	FALSE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Sodium	1860	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Vanadium	41.1	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH7	2005-04-23	Unk	Sediment	Zinc	18100	TRUE	mg/kg	96.01872365	3.881256845	2.53	422652	5391668	OU 1 South	-3.2341	4.8963	1.9024	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Aluminum	18900	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Antimony	39.1	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Arsenic	0.95	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Barium	1430	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Beryllium	1.6	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Cadmium	4.4	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Calcium	58100	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Chromium	99.4	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Cobalt	39.1	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Copper	1950	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Iron	206000	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Lead	633	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Magnesium	7350	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Manganese	3790	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Mercury	0.027	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Nickel	12	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Potassium	4060	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Selenium	2.8	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Silver	1.2	FALSE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Sodium	1720	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Vanadium	42.4	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM708C1	MJ4FH8	2005-04-23	Unk	Sediment	Zinc	17300	TRUE	mg/kg	93.8	6.1	2.53	422652	5391668	OU 1 South	-3.6692	4.5807	2.7441	1
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Aluminum	10700	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Antimony	14	FALSE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Arsenic	1.4	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Barium	102	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Cadmium	0.42	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Calcium	5300	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Chromium	24.9	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Cobalt	7.7	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Copper	26.2	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Iron	19500	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Lead	14.7	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Magnesium	5130	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Manganese	276	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Mercury	0.044	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Nickel	15.9	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Potassium	1180	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Selenium	4.1	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Silver	2.3	FALSE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Sodium	229	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Thallium	5.8	FALSE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Vanadium	36.9	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3
2005 Phase 1 Sediment Sampling	RM706A2(X7)	MJ4FH9	2005-04-20	Unk	Sediment	Zinc	97.5	TRUE	mg/kg	37.1120108	62.46626181	1118.089966	418243	5392007	OU 2 Transitional CSM Unit	2.0481	-0.479	1.8173	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Aluminum	7960	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Antimony	1.4	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Arsenic	5.8	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Barium	526	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Beryllium	0.8	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Cadmium	4.8	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Calcium	37600	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Chromium	20.7	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Cobalt	7.3	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Copper	106	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Iron	26300	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Lead	192	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Magnesium	21800	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Manganese	380	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Mercury	0.43	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Nickel	16.4	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Potassium	1330	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Selenium	9.6	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Silver	1.6	FALSE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Sodium	172	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Thallium	4	FALSE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Vanadium	28.8	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM708A1(X3)	MJ4FJ0	2005-04-21	Unk	Sediment	Zinc	1340	TRUE	mg/kg	58.63583623	41.36416377	184.3399963	422575	5391837	OU 1 South	-3.4086	-2.2383	-1.3714	2
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Aluminum	6080	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Antimony	19	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Arsenic	6.3	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Barium	516	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Beryllium	0.6	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Cadmium	3.4	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Calcium	41700	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Chromium	29.6	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Cobalt	14.3	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Copper	399	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Iron	39200	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Lead	182	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Magnesium	17700	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Manganese	745	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Mercury	0.16	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Nickel	10.6	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Potassium	1050	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Selenium	9.2	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Silver	1.3	FALSE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Sodium	534	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Vanadium	23.1	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM742A1(X1)	MJ4FJ2	2005-04-21	Unk	Sediment	Zinc	2920	TRUE	mg/kg	95.48784882	4.512151179	-70.1100006	453023	5424686	OU 1 North	-3.6818	0.5594	-0.8663	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Aluminum	7370	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Antimony	20.7	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Arsenic	8.7	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Barium	406	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Beryllium	0.72	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Cadmium	2	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Calcium	18800	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Chromium	28.5	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Cobalt	10.1	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Copper	356	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Iron	42500	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Lead	201	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Magnesium	7950	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Manganese	616	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Mercury	0.17	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Nickel	11.1	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Potassium	1060	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Selenium	7	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Silver	1.3	FALSE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Sodium	386	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Vanadium	24.2	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM743A1(X1)	MJ4FJ3	2005-04-21	Unk	Sediment	Zinc	2560	TRUE	mg/kg	91.19150215	8.207235194	-94.5199966	453237	5426264	OU 1 North	-3.289	0.472	0.0219	1
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Aluminum	6660	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Antimony	0.35	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Arsenic	1.6	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Barium	60.1	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Cadmium	0.27	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Calcium	4280	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Chromium	16.9	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Cobalt	5.6	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Copper	11.8	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Iron	13500	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Lead	9.7	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Magnesium	4030	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Manganese	268	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Mercury	0.012	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Nickel	13.9	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Potassium	1040	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Selenium	2.4	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Silver	1.3	FALSE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Sodium	150	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Vanadium	22.9	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM678A1(X1)	MJ4FJ4	2005-04-21	Unk	Sediment	Zinc	58.7	TRUE	mg/kg	77.51391727	21.5800759	-1244.930054	413860	5355239	OU 2 Upper Laucustrine CSM Unit	2.7582	-0.1668	1.1784	3
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Aluminum	12100	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Antimony	41.7	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Arsenic	8.2	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Barium	966	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Beryllium	0.99	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Cadmium	0.65	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Calcium	34500	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Chromium	72.3	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Cobalt	34.9	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Copper	1240	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Iron	99700	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Lead	221	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Magnesium	4630	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Manganese	2080	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Mercury	0.052	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Nickel	10.9	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Potassium	2130	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Selenium	11.4	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Silver	1.2	FALSE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Sodium	1220	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Vanadium	28.1	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM742A2(X5)	MJ4FJ5	2005-04-21	Unk	Sediment	Zinc	8330	TRUE	mg/kg	94.13885481	5.760997471	149.6499939	452618	5424697	OU 1 North	-2.6477	4.4001	0.9555	1
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Aluminum	11800	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Antimony	8.6	FALSE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Arsenic	2.7	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Barium	139	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Cadmium	0.4	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Calcium	14800	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Chromium	29.7	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Cobalt	10.9	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Copper	23.7	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Iron	21200	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Lead	12	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Magnesium	8570	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Manganese	466	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Mercury	0.012	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Nickel	25.4	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Potassium	2370	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Selenium	5	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Silver	1.4	FALSE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Sodium	270	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Thallium	3.6	FALSE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Vanadium	38.8	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM677A1(X3)	MJ4FJ6	2005-04-21	Unk	Sediment	Zinc	70.4	TRUE	mg/kg	8.047827087	91.95217291	719.2700195	411914	5353290	OU 2 Upper Laucustrine CSM Unit	3.0791	0.1269	0.2791	3
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Aluminum	6590	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Antimony	24.1	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Arsenic	8.2	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Barium	437	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Beryllium	0.61	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Cadmium	2.1	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Calcium	21900	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Chromium	33.1	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Cobalt	14.3	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Copper	458	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Iron	44600	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Lead	166	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Magnesium	8340	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Manganese	819	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Mercury	0.17	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Nickel	9.9	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Potassium	1120	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Selenium	7.4	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Silver	1.2	FALSE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Sodium	438	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Vanadium	21.5	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM741A1(X3)	MJ4FJ9	2005-04-21	Unk	Sediment	Zinc	3190	TRUE	mg/kg	88.11323403	11.88676597	135.4600067	450973	5423868	OU 1 North	-3.3514	1.1491	0.0426	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Aluminum	5740	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Antimony	6.2	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Arsenic	5.2	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Barium	268	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Beryllium	0.73	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Cadmium	2	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Calcium	17800	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Chromium	21.5	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Cobalt	8.3	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Copper	181	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Iron	25200	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Lead	118	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Magnesium	8440	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Manganese	429	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Mercury	0.14	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Nickel	11	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Potassium	1190	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Selenium	5	FALSE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Silver	1.4	FALSE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Sodium	226	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Thallium	1.5	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Vanadium	21.4	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM740A1(X1)	MJ4FK0	2005-04-21	Unk	Sediment	Zinc	1480	TRUE	mg/kg	79.57985046	11.09908393	-156.5700073	450102	5422901	OU 1 North	-2.7154	-0.4773	-0.0458	1
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Aluminum	9990	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Antimony	1.3	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Arsenic	3.1	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Barium	99.4	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Beryllium	1	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Cadmium	0.14	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Calcium	4730	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Chromium	22.1	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Cobalt	9.4	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Copper	21	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Iron	19300	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Lead	16	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Magnesium	5770	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Manganese	358	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Mercury	0.017	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Nickel	21.7	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Potassium	1690	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Selenium	5.1	FALSE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Silver	1.4	FALSE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Sodium	154	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Thallium	3.6	FALSE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Vanadium	28.2	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM724A1(X1)	MJ4FK1	2005-04-21	Unk	Sediment	Zinc	93.1	TRUE	mg/kg	81.58319871	18.41680129	-67.2600021	432356	5409403	OU 1 South	3.0054	0.1236	1.0313	3
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Aluminum	14200	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Antimony	14.2	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Arsenic	5.8	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Barium	650	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Cadmium	0.25	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Calcium	32000	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Chromium	43.2	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Cobalt	16.8	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Copper	829	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Iron	128000	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Lead	382	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Magnesium	5210	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Manganese	2300	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Mercury	0.015	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Nickel	7.6	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Potassium	2920	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Selenium	3.3	FALSE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Silver	0.94	FALSE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Sodium	945	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Vanadium	32.4	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK2	2005-04-22	Unk	Sediment	Zinc	11700	TRUE	mg/kg	98.33343337	1.666566633	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.2483	4.5575	0.925	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Aluminum	14300	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Antimony	12.2	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Arsenic	6.1	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Barium	634	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Beryllium	1.1	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Cadmium	0.23	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Calcium	32400	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Chromium	41.6	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Cobalt	17.1	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Copper	831	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Iron	127000	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Lead	378	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Magnesium	5010	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Manganese	2270	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Mercury	0.011	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Nickel	7.7	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Potassium	2880	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Selenium	3.1	FALSE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Silver	0.88	FALSE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Sodium	984	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Thallium	0.69	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Vanadium	31.6	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK3	2005-04-22	Unk	Sediment	Zinc	11700	TRUE	mg/kg	98.52955887	1.470441132	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.1455	4.7348	0.8325	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Aluminum	13900	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Antimony	11.4	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Arsenic	5.3	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Barium	599	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Beryllium	1.1	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Cadmium	0.38	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Calcium	29900	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Chromium	37.6	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Cobalt	15.5	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Copper	789	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Iron	119000	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Lead	431	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Magnesium	4850	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Manganese	2180	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Mercury	0.016	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Nickel	6.6	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Potassium	2830	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Selenium	3	FALSE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Silver	0.87	FALSE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Sodium	942	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Vanadium	32.8	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK4	2005-04-22	Unk	Sediment	Zinc	11100	TRUE	mg/kg	98.81185742	1.188142577	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5556	4.2732	1.0498	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Aluminum	15200	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Antimony	11.9	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Arsenic	7.7	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Barium	664	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Cadmium	0.5	FALSE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Calcium	35500	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Chromium	43.9	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Cobalt	17.1	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Copper	875	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Iron	127000	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Lead	439	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Magnesium	5520	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Manganese	2380	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Mercury	0.015	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Nickel	7.6	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Potassium	2790	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Selenium	3.5	FALSE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Silver	1	FALSE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Sodium	1030	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Vanadium	31.6	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK5	2005-04-22	Unk	Sediment	Zinc	12100	TRUE	mg/kg	97.92056332	2.079436682	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5902	4.2607	0.7795	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Aluminum	14900	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Antimony	12	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Arsenic	10.3	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Barium	680	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Cadmium	0.48	FALSE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Calcium	33700	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Chromium	42.6	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Cobalt	17.1	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Copper	884	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Iron	126000	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Lead	542	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Magnesium	5450	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Manganese	2380	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Mercury	0.013	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Nickel	7.6	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Potassium	2870	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Selenium	3.3	FALSE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Silver	0.96	FALSE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Sodium	1000	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Vanadium	31	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK6	2005-04-22	Unk	Sediment	Zinc	12500	TRUE	mg/kg	98.31671384	1.683286159	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.6441	4.2471	0.6394	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Aluminum	14700	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Antimony	13	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Arsenic	8.8	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Barium	671	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Cadmium	0.47	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Calcium	33200	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Chromium	43.2	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Cobalt	17.5	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Copper	873	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Iron	128000	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Lead	498	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Magnesium	5460	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Manganese	2490	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Mercury	0.013	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Nickel	7.4	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Potassium	3060	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Selenium	3.3	FALSE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Silver	0.94	FALSE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Sodium	922	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Vanadium	33.2	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM704C1	MJ4FK7	2005-04-22	Unk	Sediment	Zinc	12600	TRUE	mg/kg	98.11864254	1.881357458	-69.1100006	418723	5388629	OU 2 Transitional CSM Unit	-2.5456	4.284	0.769	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Aluminum	21100	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Antimony	25.2	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Arsenic	8.5	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Barium	1140	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Cadmium	0.27	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Calcium	58300	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Chromium	100	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Cobalt	38.1	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Copper	1630	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Iron	207000	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Lead	215	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Magnesium	6810	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Manganese	3410	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Nickel	9.3	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Potassium	4020	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Selenium	19.5	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Silver	1.2	FALSE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Sodium	1770	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Thallium	3	FALSE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Vanadium	41.3	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM738A1(X3)	MJ4FK8	2005-04-22	Unk	Sediment	Zinc	14400	TRUE	mg/kg	96.91502183	3.084978172	130	447262	5421262	OU 1 North	-3.6042	3.8843	1.2435	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Aluminum	7030	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Antimony	25.4	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Arsenic	7.9	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Barium	327	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Beryllium	0.7	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Cadmium	1.8	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Calcium	18000	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Chromium	29.1	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Cobalt	12.2	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Copper	367	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Iron	35700	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Lead	114	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Magnesium	8130	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Manganese	570	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Mercury	0.3	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Nickel	12	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Potassium	1180	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Selenium	4.8	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Silver	1.5	FALSE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Sodium	390	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Thallium	3.7	FALSE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Vanadium	22.6	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM739A1(X3)	MJ4FK9	2005-04-22	Unk	Sediment	Zinc	2120	TRUE	mg/kg	80.51916837	14.6737171	89.5400009	448630	5422437	OU 1 North	-2.8976	0.2611	0.1576	1
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Aluminum	3170	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Antimony	11.3	FALSE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Arsenic	3.4	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Barium	234	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Beryllium	0.075	FALSE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Cadmium	1.3	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Calcium	229000	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Chromium	7.4	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Cobalt	2.1	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Copper	6.6	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Iron	5090	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Lead	25.5	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Magnesium	3840	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Manganese	316	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Mercury	0.015	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Nickel	5.3	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Potassium	675	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Selenium	10.3	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Silver	1.9	FALSE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Sodium	199	FALSE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Thallium	4.7	FALSE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Vanadium	8.5	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM732R1	MJ4FL0	2005-04-22	Unk	Sediment	Zinc	49	TRUE	mg/kg	51.27994749	40.10502133	-845.3499756	441399	5416524	US Tributary	-1.6074	-0.2458	-5.0612	2
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Aluminum	12300	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Antimony	24.6	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Arsenic	2.1	FALSE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Barium	769	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Beryllium	1.1	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Cadmium	2.2	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Calcium	34300	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Chromium	49	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Cobalt	20.7	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Copper	969	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Iron	114000	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Lead	267	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Magnesium	7940	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Manganese	1980	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Mercury	0.11	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Nickel	10.6	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Potassium	2520	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Selenium	10.6	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Silver	1.2	FALSE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Sodium	933	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Thallium	3	FALSE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Vanadium	30	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM724A2(X3)	MJ4FL1	2005-04-22	Unk	Sediment	Zinc	8410	TRUE	mg/kg	85.92200925	14.07799075	145.0899963	432025	5409613	OU 1 South	-3.4711	2.9529	1.5883	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Aluminum	14600	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Antimony	62.5	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Arsenic	3.6	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Barium	1490	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Cadmium	1.2	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Calcium	47100	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Chromium	111	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Cobalt	59.4	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Copper	1920	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Iron	172000	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Lead	163	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Magnesium	5270	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Manganese	3050	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Mercury	0.22	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Nickel	11.6	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Potassium	3200	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Selenium	13	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Silver	1.2	FALSE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Sodium	1630	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Thallium	3	FALSE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Vanadium	35.1	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM737A1(X3)	MJ4FL2	2005-04-22	Unk	Sediment	Zinc	12300	TRUE	mg/kg	97.71123679	2.288763208	88.9499969	446340	5421018	OU 1 North	-2.9825	4.7888	1.8823	1
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Aluminum	5030	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Antimony	1.5	FALSE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Arsenic	2.3	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Barium	109	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Beryllium	0.44	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Cadmium	0.53	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Calcium	6940	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Chromium	12.6	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Cobalt	4.8	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Copper	22.2	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Iron	13600	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Lead	24.5	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Magnesium	4530	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Manganese	195	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Mercury	0.038	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Nickel	12	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Potassium	890	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Selenium	3.6	FALSE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Silver	1.1	FALSE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Sodium	112	FALSE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Vanadium	19.1	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM723A1(X1)	MJ4FL3	2005-04-22	Unk	Sediment	Zinc	179	TRUE	mg/kg	83.36961363	16.63038637	-84.6100006	431936	5407604	OU 1 South	0.218	-0.8845	0.147	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Aluminum	6390	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Antimony	5.1	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Arsenic	4.8	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Barium	540	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Beryllium	0.71	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Cadmium	4.3	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Calcium	35300	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Chromium	20.7	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Cobalt	7.5	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Copper	129	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Iron	27400	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Lead	214	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Magnesium	20700	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Manganese	378	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Mercury	0.33	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Nickel	15.1	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Potassium	1330	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Selenium	9.8	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Silver	1.4	FALSE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Sodium	197	FALSE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Thallium	3.5	FALSE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Vanadium	27	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM736A1(X1)	MJ4FL4	2005-04-22	Unk	Sediment	Zinc	1760	TRUE	mg/kg	60.01703321	19.3427183	-140.3600006	445277	5420569	OU 1 North	-3.6663	-1.7904	-1.2189	2
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Aluminum	6410	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Antimony	7	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Arsenic	4.4	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Barium	368	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Beryllium	0.69	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Cadmium	2.7	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Calcium	18200	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Chromium	20.3	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Cobalt	9.1	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Copper	195	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Iron	34900	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Lead	203	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Magnesium	10600	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Manganese	558	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Mercury	0.39	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Nickel	12.2	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Potassium	1250	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Selenium	7.7	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Silver	1.6	FALSE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Sodium	243	FALSE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Thallium	4	FALSE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Vanadium	22.5	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM723A2(X3)	MJ4FL5	2005-04-22	Unk	Sediment	Zinc	2290	TRUE	mg/kg	69.43046891	30.56953109	312.9599915	431096	5407664	OU 1 South	-3.5348	-0.6464	0.1137	1
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Aluminum	6900	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Antimony	10.3	FALSE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Arsenic	3.1	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Barium	101	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Beryllium	0.42	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Cadmium	0.58	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Calcium	62800	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Chromium	23.9	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Cobalt	5.8	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Copper	16.7	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Iron	14400	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Lead	14.5	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Magnesium	4530	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Manganese	196	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Mercury	0.02	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Nickel	15.2	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Potassium	789	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Selenium	4.9	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Silver	1.7	FALSE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Sodium	163	FALSE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Thallium	4.3	FALSE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Vanadium	25	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM726R1	MJ4FL8	2005-04-22	Unk	Sediment	Zinc	60.5	TRUE	mg/kg	70.30871182	24.43833845	2463.919922	430719	5412475	US Tributary	1.3127	-0.4647	-1.7148	3
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Aluminum	7280	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Aluminum	7280	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Antimony	11.6	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Antimony	11.6	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Arsenic	1.3	FALSE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Arsenic	1.3	FALSE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Barium	318	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Barium	318	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Cadmium	1.8	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Cadmium	1.8	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Calcium	21200	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Calcium	21200	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Chromium	25.9	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Chromium	25.9	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Cobalt	10.1	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Cobalt	10.1	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Copper	396	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Copper	396	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Iron	57600	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Iron	57600	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Lead	148	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Lead	148	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Magnesium	5470	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Magnesium	5470	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Manganese	1140	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Manganese	1140	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Mercury	0.09	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Mercury	0.09	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Nickel	6.6	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Nickel	6.6	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Potassium	1500	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Potassium	1500	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Selenium	6.4	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Selenium	6.4	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Silver	1.3	FALSE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Sodium	460	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Sodium	460	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Vanadium	20	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Vanadium	20	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Zinc	4610	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM734A1	MJ4FL9	2005-04-22	Unk	Sediment	Zinc	4610	TRUE	mg/kg	94.7	4.9	64.6399994	443303	5419362	OU 1 North	-3.3558	2.0588	1.5096	1
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Aluminum	6190	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Arsenic	3.2	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Barium	44.3	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Beryllium	0.5	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Cadmium	0.11	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Calcium	1830	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Chromium	14.4	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Cobalt	4.6	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Copper	8.7	FALSE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Iron	12300	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Lead	5.7	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Magnesium	3390	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Manganese	143	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Nickel	12.5	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Potassium	720	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Selenium	2.3	FALSE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Sodium	110	FALSE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Vanadium	18.9	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X1	MJ4FM0	2005-04-22	Unk	Sediment	Zinc	38.6	TRUE	mg/kg	96.9	3.1	-925.0300293	397317	5320597	OU 2 Middle Laucustrine CSM Unit	2.9509	-1.1109	1.0843	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Aluminum	15000	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Arsenic	9.2	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Barium	187	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Cadmium	1.3	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Calcium	5940	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Chromium	34.1	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Cobalt	13.2	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Copper	51.3	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Iron	28600	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Lead	71.5	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Magnesium	8230	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Manganese	659	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Mercury	0.13	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Nickel	29.6	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Potassium	2460	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Selenium	5.1	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Sodium	341	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Thallium	4.9	FALSE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Vanadium	40.9	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM649X2	MJ4FM1	2005-04-22	Unk	Sediment	Zinc	243	TRUE	mg/kg	20.82964013	79.17035987	-21.0300007	396284	5320977	OU 2 Middle Laucustrine CSM Unit	0.8842	-0.9906	1.352	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Aluminum	8330	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Arsenic	12.5	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Barium	106	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Cadmium	0.22	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Calcium	8020	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Chromium	37.1	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Cobalt	10.2	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Copper	20.6	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Iron	21900	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Lead	12.2	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Magnesium	6420	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Manganese	409	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Mercury	0.019	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Nickel	32.2	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Potassium	943	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Selenium	3.1	FALSE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Sodium	144	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Vanadium	30	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM652X1	MJ4FM2	2005-04-22	Unk	Sediment	Zinc	59.6	TRUE	mg/kg	83.86289717	7.43057293	-449.3900146	400787	5321844	OU 2 Middle Laucustrine CSM Unit	3.1658	0.1764	-0.4916	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Aluminum	7830	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Antimony	1	FALSE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Arsenic	3	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Barium	76.6	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Beryllium	0.77	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Cadmium	0.32	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Calcium	2430	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Chromium	16.6	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Cobalt	7.3	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Copper	11.3	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Iron	13700	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Lead	21.1	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Magnesium	3280	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Manganese	162	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Mercury	0.016	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Nickel	14.4	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Potassium	1490	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Selenium	2.3	FALSE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Silver	1.2	FALSE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Sodium	153	FALSE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Thallium	3	FALSE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Vanadium	22	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM661A1(X1)	MJ4FM3	2005-04-22	Unk	Sediment	Zinc	83.5	TRUE	mg/kg	60.77681626	30.56953109	-711.5999756	408171	5331292	OU 2 Upper Laucustrine CSM Unit	2.409	-0.7037	1.5793	3
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Aluminum	4030	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Antimony	10.5	FALSE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Arsenic	1.8	FALSE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Barium	45.4	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Cadmium	0.16	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Calcium	3480	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Chromium	6.9	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Cobalt	3.4	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Copper	7.9	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Iron	7010	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Lead	6.2	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Magnesium	2220	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Manganese	210	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Nickel	4.9	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Potassium	831	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Selenium	2.2	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Silver	1.8	FALSE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Sodium	60.8	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Thallium	4.4	FALSE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Vanadium	12.8	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM705R1	MJ4FM6	2005-04-23	Unk	Sediment	Zinc	31.1	TRUE	mg/kg	77.18060261	15.40204078	536.960022	417960	5389749	US Tributary	0.8269	-1.4818	0.7507	2
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Aluminum	6310	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Antimony	8.2	FALSE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Arsenic	1.4	FALSE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Barium	61.5	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Beryllium	0.7	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Cadmium	0.19	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Calcium	3450	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Chromium	8.9	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Cobalt	3.8	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Copper	5.5	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Iron	7560	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Lead	3.8	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Magnesium	2070	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Manganese	138	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Mercury	0.008	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Nickel	5.8	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Potassium	1030	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Selenium	2.6	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Silver	1.4	FALSE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Sodium	91.6	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Thallium	3.4	FALSE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Vanadium	12.9	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM686R1	MJ4FM9	2005-04-23	Unk	Sediment	Zinc	26.1	TRUE	mg/kg	68.5483871	31.4516129	1442.189941	409599	5365222	US Tributary	3.0008	-0.2924	0.6966	3
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Aluminum	13400	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Antimony	14.3	FALSE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Arsenic	5.3	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Barium	361	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Cadmium	8	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Calcium	18100	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Chromium	33.4	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Cobalt	11.5	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Copper	101	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Iron	28700	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Lead	288	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Magnesium	12300	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Manganese	487	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Mercury	1.6	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Nickel	27.5	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Potassium	2370	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Selenium	7.8	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Silver	2.4	FALSE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Sodium	296	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Thallium	6	FALSE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Vanadium	43	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN0	2005-04-23	Unk	Sediment	Zinc	1120	TRUE	mg/kg	9.558954295	90.21874444	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.6986	-2.858	0.9703	2
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Aluminum	6250	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Antimony	14.9	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Arsenic	2.4	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Barium	424	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Beryllium	0.61	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Cadmium	3.5	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Calcium	23600	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Chromium	25.4	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Cobalt	10.3	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Copper	400	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Iron	46400	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Lead	266	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Magnesium	7880	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Manganese	1030	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Mercury	0.16	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Nickel	7.7	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Potassium	1220	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Selenium	4.4	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Silver	1.1	FALSE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Sodium	394	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Vanadium	20	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM730A1	MJ4FN1	2005-04-23	Unk	Sediment	Zinc	4690	TRUE	mg/kg	93.09775264	6.90224736	-174.2299957	438822	5414799	OU 1 North	-4.2564	1.0767	0.777	1
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Aluminum	11800	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Antimony	11.3	FALSE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Arsenic	4.4	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Barium	479	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Cadmium	5	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Calcium	20500	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Chromium	32	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Cobalt	11.4	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Copper	129	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Iron	27000	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Lead	214	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Magnesium	13000	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Manganese	497	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Mercury	0.52	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Nickel	24.4	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Potassium	2260	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Selenium	7.2	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Silver	1.9	FALSE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Sodium	260	FALSE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Thallium	4.7	FALSE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Vanadium	42.1	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN2	2005-04-23	Unk	Sediment	Zinc	981	TRUE	mg/kg	18.76759462	81.02387655	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-2.4511	-2.0578	0.5226	2
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Aluminum	9510	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Antimony	17.4	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Arsenic	6.6	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Barium	489	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Beryllium	0.88	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Cadmium	2.9	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Calcium	29700	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Chromium	38.6	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Cobalt	20	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Copper	641	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Iron	88400	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Lead	1390	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Magnesium	5860	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Manganese	2490	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Mercury	0.083	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Nickel	9.5	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Potassium	2480	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Selenium	3.7	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Silver	0.98	FALSE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Sodium	957	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Vanadium	28	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM733A1(X1)	MJ4FN3	2005-04-23	Unk	Sediment	Zinc	8200	TRUE	mg/kg	88.37600336	8.521328342	-80.3199997	441857	5418398	OU 1 North	-4.05	2.4661	1.4003	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Aluminum	3080	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Antimony	9.9	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Arsenic	2	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Barium	172	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Beryllium	0.32	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Cadmium	1.1	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Calcium	11100	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Chromium	14.5	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Cobalt	6.1	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Copper	183	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Iron	16200	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Lead	68.4	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Magnesium	5090	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Manganese	371	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Mercury	0.06	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Nickel	6.3	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Potassium	611	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Selenium	3.9	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Silver	1.2	FALSE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Sodium	157	FALSE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Thallium	3	FALSE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Vanadium	11	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM729A1(X1)	MJ4FN4	2005-04-23	Unk	Sediment	Zinc	1250	TRUE	mg/kg	87.82503013	5.673116838	-217.7100067	437894	5413939	OU 1 North	-3.028	0.5148	0.2306	1
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Aluminum	7440	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Antimony	10.1	FALSE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Arsenic	2.9	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Barium	284	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Beryllium	0.82	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Cadmium	5.4	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Calcium	15100	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Chromium	21.5	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Cobalt	6.7	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Copper	104	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Iron	22300	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Lead	216	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Magnesium	8150	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Manganese	391	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Mercury	1.7	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Nickel	14.1	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Potassium	1360	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Selenium	5.7	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Silver	1.7	FALSE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Sodium	219	FALSE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Thallium	4.2	FALSE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Vanadium	26.8	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FN5	2005-04-23	Unk	Sediment	Zinc	1450	TRUE	mg/kg	42.39370853	57.60629147	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.715	-2.4183	0.8392	2
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Aluminum	8840	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Antimony	11.6	FALSE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Arsenic	1.9	FALSE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Barium	221	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Beryllium	0.7	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Cadmium	0.85	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Calcium	45500	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Chromium	23.8	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Cobalt	7.5	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Copper	16.3	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Iron	15600	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Lead	10.1	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Magnesium	4710	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Manganese	447	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Mercury	0.026	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Nickel	24.3	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Potassium	1590	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Selenium	3.4	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Silver	1.9	FALSE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Sodium	173	FALSE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Thallium	4.8	FALSE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Vanadium	33.9	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM685R1	MJ4FN6	2005-04-23	Unk	Sediment	Zinc	72.8	TRUE	mg/kg	57.49695246	38.03331979	-1595.569946	412657	5363476	US Tributary	1.5243	-0.2529	-0.8997	3
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Aluminum	14400	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Antimony	5.6	FALSE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Arsenic	7.6	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Barium	75.9	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Beryllium	0.97	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Cadmium	0.52	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Calcium	3960	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Chromium	8.6	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Cobalt	9.3	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Copper	9.4	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Iron	27500	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Lead	12	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Magnesium	8210	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Manganese	610	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Nickel	6.1	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Selenium	4.6	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Silver	0.94	FALSE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Sodium	45.4	FALSE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Vanadium	43.1	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X1	MJ4FN9	2005-04-23	Unk	Sediment	Zinc	83.2	TRUE	mg/kg	92.31661699	3.582644876	-191.6300049	399539	5313995	OU 2 Middle Laucustrine CSM Unit	1.3501	-1.954	0.6252	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Aluminum	16100	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Antimony	3.7	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Arsenic	7.5	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Barium	214	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Cadmium	2.6	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Calcium	5150	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Chromium	35.3	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Cobalt	13	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Copper	65.5	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Iron	29100	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Lead	109	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Magnesium	8230	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Manganese	758	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Mercury	0.39	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Nickel	29.3	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Potassium	2700	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Selenium	4.2	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Silver	2.2	FALSE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Sodium	257	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Thallium	5.6	FALSE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Vanadium	40.4	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM644X2	MJ4FP0	2005-04-23	Unk	Sediment	Zinc	339	TRUE	mg/kg	2.581977795	97.41802221	-18.1700001	399361	5313991	OU 2 Middle Laucustrine CSM Unit	-0.0898	-1.6798	1.8997	2
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Aluminum	5600	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Antimony	1.2	FALSE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Arsenic	0.89	FALSE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Barium	39.2	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Beryllium	0.61	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Cadmium	0.086	FALSE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Calcium	1490	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Chromium	4.6	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Cobalt	3.4	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Copper	3	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Iron	11400	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Lead	6.8	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Magnesium	2240	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Manganese	118	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Nickel	2.8	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Potassium	1250	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Selenium	2.1	FALSE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Silver	0.89	FALSE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Sodium	114	FALSE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Vanadium	18.2	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X3	MJ4FP1	2005-04-23	Unk	Sediment	Zinc	51.8	TRUE	mg/kg	84.40804229	12.68824095	680.8900146	396847	5316335	OU 2 Middle Laucustrine CSM Unit	1.6049	-1.2828	1.9052	3
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Aluminum	14000	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Antimony	1.8	FALSE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Arsenic	6.8	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Barium	164	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Cadmium	1.2	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Calcium	4940	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Chromium	30	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Cobalt	12.5	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Copper	43.6	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Iron	26700	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Lead	54.3	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Magnesium	7780	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Manganese	450	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Mercury	0.13	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Nickel	26.9	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Potassium	2320	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Selenium	5.2	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Silver	1.3	FALSE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Sodium	222	FALSE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Vanadium	35.4	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X2	MJ4FP2	2005-04-23	Unk	Sediment	Zinc	199	TRUE	mg/kg	30.64798599	69.35201401	-37.2400017	397547	5316843	OU 2 Middle Laucustrine CSM Unit	1.0172	-1.2706	1.4193	2
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Aluminum	6470	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Antimony	0.54	FALSE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Arsenic	9.5	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Barium	67.6	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Beryllium	0.53	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Cadmium	0.076	FALSE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Calcium	8110	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Chromium	12.8	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Cobalt	7	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Copper	12.9	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Iron	15900	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Lead	8.1	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Magnesium	4540	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Manganese	307	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Mercury	0.005	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Nickel	13.5	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Potassium	1100	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Selenium	2.6	FALSE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Silver	1	FALSE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Sodium	87.4	FALSE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Vanadium	17.3	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM646X1	MJ4FP6	2005-04-23	Unk	Sediment	Zinc	39.6	TRUE	mg/kg	89.53951821	10.46048179	-261.7600098	397740	5316960	OU 2 Middle Laucustrine CSM Unit	3.5702	0.6673	-1.1116	3
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Aluminum	5990	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Antimony	0.27	FALSE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Arsenic	5.4	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Barium	54.9	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Beryllium	0.4	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Cadmium	0.43	FALSE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Calcium	6940	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Chromium	14.9	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Cobalt	6.1	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Copper	13	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Iron	14500	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Lead	5.7	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Magnesium	3720	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Manganese	226	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Nickel	15.2	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Potassium	817	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Selenium	2.2	FALSE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Silver	0.87	FALSE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Sodium	121	FALSE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Vanadium	17.3	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM649X3	MJ4FP9	2005-04-23	Unk	Sediment	Zinc	34.8	TRUE	mg/kg	82.13141026	15.86538462	211.8300018	395958	5321072	OU 2 Middle Laucustrine CSM Unit	1.2144	-1.5608	0.0146	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Aluminum	8850	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Antimony	0.82	FALSE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Arsenic	9	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Barium	501	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Beryllium	0.8	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Cadmium	9.8	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Calcium	55700	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Chromium	21.4	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Cobalt	7.2	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Copper	79.8	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Iron	31200	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Lead	367	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Magnesium	23100	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Manganese	499	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Mercury	0.98	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Nickel	19.3	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Potassium	1400	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Selenium	9.5	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Silver	1.5	FALSE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Sodium	292	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Thallium	3.7	FALSE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Vanadium	30.2	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM692C1	MJ4FQ0	2005-04-23	Unk	Sediment	Zinc	1530	TRUE	mg/kg	23.93529218	76.06470782	-48.2900009	413084	5374579	OU 2 Upper Laucustrine CSM Unit	-3.9722	-2.7002	-1.581	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Aluminum	15900	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Arsenic	9	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Barium	258	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Beryllium	1.6	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Cadmium	5.5	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Calcium	12600	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Chromium	41.8	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Cobalt	13.5	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Copper	98.5	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Iron	29400	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Lead	330	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Magnesium	9950	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Manganese	553	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Mercury	1.5	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Nickel	28.1	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Selenium	5	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Sodium	514	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Thallium	5.6	FALSE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Vanadium	47.5	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ1	2005-04-25	Unk	Sediment	Zinc	1040	TRUE	mg/kg	11.31221719	88.68778281	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-1.9431	-2.508	1.4956	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Aluminum	12800	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Arsenic	17.5	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Barium	1040	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Cadmium	14.2	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Calcium	38200	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Chromium	33.3	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Cobalt	9.3	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Copper	68.5	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Iron	28800	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Lead	690	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Magnesium	22400	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Manganese	526	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Mercury	2.4	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Nickel	26	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Potassium	2390	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Selenium	7.4	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Sodium	420	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Thallium	4.3	FALSE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Vanadium	42.8	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ2	2005-04-25	Unk	Sediment	Zinc	1710	TRUE	mg/kg	6.315409599	93.6845904	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-4.0973	-3.3322	-1.1881	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Aluminum	14800	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Arsenic	14.3	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Barium	409	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Cadmium	13.2	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Calcium	22400	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Chromium	32.6	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Cobalt	12.3	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Copper	84.6	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Iron	29300	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Lead	1010	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Magnesium	15100	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Manganese	617	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Mercury	2.7	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Nickel	27	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Potassium	2820	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Selenium	6.5	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Sodium	427	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Thallium	4	FALSE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Vanadium	42.5	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ3	2005-04-25	Unk	Sediment	Zinc	1890	TRUE	mg/kg	10.53370787	89.46629213	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.6079	-3.3831	0.4235	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Aluminum	14600	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Arsenic	17.8	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Barium	427	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Cadmium	14.1	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Calcium	24500	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Chromium	33.5	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Cobalt	12.8	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Copper	120	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Iron	30000	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Lead	1050	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Magnesium	15200	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Manganese	719	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Mercury	3.2	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Nickel	26.7	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Potassium	3250	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Selenium	7.3	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Sodium	585	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Thallium	4.5	FALSE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Vanadium	45.7	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ4	2005-04-25	Unk	Sediment	Zinc	2120	TRUE	mg/kg	10.39971062	80.10490143	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7887	-3.2149	0.357	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Aluminum	16400	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Arsenic	17.3	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Barium	600	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Beryllium	1.6	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Cadmium	17.9	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Calcium	28800	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Chromium	37.6	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Cobalt	12.2	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Copper	94.3	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Iron	30400	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Lead	1230	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Magnesium	18600	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Manganese	728	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Mercury	2.3	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Nickel	29.6	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Potassium	3280	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Selenium	7.5	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Sodium	500	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Thallium	4	FALSE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Vanadium	49.4	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM676C1	MJ4FQ5	2005-04-25	Unk	Sediment	Zinc	1960	TRUE	mg/kg	5.24383849	87.36711637	22.0900002	412936	5351925	OU 2 Upper Laucustrine CSM Unit	-3.7984	-3.4109	0.0647	2
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Aluminum	14000	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Arsenic	14.1	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Barium	162	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Cadmium	0.15	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Calcium	10200	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Chromium	25.9	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Cobalt	15	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Copper	22.6	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Iron	25900	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Lead	17.7	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Magnesium	7260	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Manganese	641	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Mercury	0.01	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Nickel	26.4	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Potassium	2310	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Selenium	3.5	FALSE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Sodium	197	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Thallium	3	FALSE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Vanadium	34.4	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM644A1(X3)	MJ4FQ6	2005-04-26	Unk	Sediment	Zinc	64	TRUE	mg/kg	57.7020629	41.6638485	702.039978	398545	5313864	OU 2 Middle Laucustrine CSM Unit	3.6443	0.7319	-0.4244	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Aluminum	5620	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Arsenic	3.9	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Barium	41.1	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Beryllium	0.57	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Cadmium	0.58	FALSE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Calcium	11300	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Chromium	8.3	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Cobalt	4.4	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Copper	7	FALSE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Iron	12400	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Lead	5.7	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Magnesium	4700	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Manganese	214	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Mercury	0.006	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Nickel	6.4	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Potassium	1180	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Selenium	2.6	FALSE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Sodium	111	FALSE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Vanadium	14.5	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM637A1(X1)	MJ4FQ7	2005-04-26	Unk	Sediment	Zinc	30.9	TRUE	mg/kg	82.61115251	2.686862726	-536.0599976	399361	5302217	OU 2 Middle Laucustrine CSM Unit	2.7284	-0.5923	-0.856	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Aluminum	10400	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Arsenic	13.5	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Barium	97.2	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Beryllium	0.99	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Cadmium	0.14	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Calcium	19400	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Chromium	14	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Cobalt	9.7	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Copper	16.5	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Iron	24800	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Lead	12.7	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Magnesium	7330	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Manganese	458	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Mercury	0.008	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Nickel	13.4	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Potassium	1860	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Selenium	3.9	FALSE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Sodium	136	FALSE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Vanadium	28.1	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM634A1(X1)	MJ4FQ8	2005-04-26	Unk	Sediment	Zinc	76.4	TRUE	mg/kg	85.65009829	14.34990171	-781.9000244	397563	5297868	OU 2 Middle Laucustrine CSM Unit	3.2315	0.4803	-1.4792	3
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Aluminum	10100	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Arsenic	4.1	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Barium	94.9	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Beryllium	0.91	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Cadmium	2.1	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Chromium	17.9	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Cobalt	7.7	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Copper	19.9	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Iron	16900	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Lead	82.4	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Magnesium	4010	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Manganese	314	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Mercury	0.23	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Nickel	14.8	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Potassium	1800	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Selenium	3.1	FALSE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Sodium	171	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Thallium	3	FALSE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Vanadium	22.8	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM642A1(X1)	MJ4FQ9	2005-04-26	Unk	Sediment	Zinc	292	TRUE	mg/kg	51.88364727	48.11635273	-664.539978	399366	5310411	OU 2 Middle Laucustrine CSM Unit	-0.1204	-2.1351	2.3036	2
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Aluminum	4680	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Arsenic	3	FALSE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Barium	35.5	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Beryllium	0.35	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Cadmium	0.62	FALSE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Calcium	5370	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Chromium	6.4	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Cobalt	2.7	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Copper	6	FALSE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Iron	9830	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Lead	3.9	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Magnesium	4000	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Manganese	138	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Mercury	0.006	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Nickel	5.7	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Potassium	747	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Selenium	3	FALSE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Sodium	99	FALSE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Thallium	3.1	FALSE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Vanadium	8.9	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM605A1(X1)	MJ4FR0	2005-04-26	Unk	Sediment	Zinc	27.9	TRUE	mg/kg	78.30861395	2.189240816	-1158.77002	361971	5311454	OU 2 Lower Laucustrine CSM Unit	2.3326	-0.8401	-0.7112	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Aluminum	8020	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Arsenic	3.1	FALSE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Barium	56.8	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Beryllium	0.73	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Cadmium	0.28	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Calcium	2290	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Chromium	12.6	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Cobalt	5.4	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Copper	7.9	FALSE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Iron	15300	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Lead	10.4	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Magnesium	4110	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Manganese	217	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Mercury	0.013	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Nickel	10	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Potassium	1400	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Selenium	3.1	FALSE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Sodium	159	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Vanadium	20.1	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM606A1(X3)	MJ4FR1	2005-04-26	Unk	Sediment	Zinc	102	TRUE	mg/kg	77.62705915	19.26384675	644.7700195	364144	5310353	OU 2 Lower Laucustrine CSM Unit	2.8022	-0.4527	1.2688	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Aluminum	6140	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Arsenic	4.9	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Barium	47.8	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Cadmium	0.14	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Calcium	4510	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Chromium	10.7	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Cobalt	4.5	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Copper	8.5	FALSE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Iron	12100	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Lead	6.1	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Magnesium	4240	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Manganese	225	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Mercury	0.009	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Nickel	9.5	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Potassium	1120	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Selenium	2.8	FALSE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Sodium	112	FALSE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Thallium	3	FALSE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Vanadium	14.3	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM616A1(X3)	MJ4FR2	2005-04-26	Unk	Sediment	Zinc	49.5	TRUE	mg/kg	84.716061	13.5816068	1104.630005	374836	5312240	OU 2 Lower Laucustrine CSM Unit	3.1557	-0.1295	-0.2629	3
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Aluminum	13500	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Arsenic	3.4	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Barium	128	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Cadmium	2.4	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Calcium	3770	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Chromium	24.1	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Cobalt	10.3	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Copper	28	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Iron	20500	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Lead	67.7	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Magnesium	5230	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Manganese	379	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Mercury	0.34	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Nickel	20.5	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Potassium	2430	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Selenium	4.8	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Sodium	254	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Thallium	4.7	FALSE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Vanadium	29.6	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM641A1(X1)	MJ4FR3	2005-04-26	Unk	Sediment	Zinc	355	TRUE	mg/kg	15.09846827	84.68271335	-376.7200012	399190	5308760	OU 2 Middle Laucustrine CSM Unit	0.0694	-2.0377	2.458	2
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Aluminum	5870	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Arsenic	7.1	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Barium	38.7	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Beryllium	0.46	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Cadmium	0.058	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Calcium	8050	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Chromium	7.2	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Cobalt	3.6	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Copper	8.7	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Iron	12400	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Lead	7.4	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Magnesium	4890	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Manganese	257	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Mercury	0.007	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Nickel	7	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Potassium	1020	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Selenium	3.6	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Silver	1.2	FALSE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Sodium	92	FALSE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Vanadium	9	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM628A1(X1)	MJ4FR6	2005-04-26	Unk	Sediment	Zinc	40.7	TRUE	mg/kg	95.91870415	3.881256845	-356.2999878	390091	5303685	OU 2 Middle Laucustrine CSM Unit	3.0787	0.2787	-1.4626	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Aluminum	18600	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Arsenic	15.9	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Barium	334	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Beryllium	1.6	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Cadmium	12.7	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Calcium	12800	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Chromium	38.3	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Cobalt	13.6	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Copper	70.7	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Iron	34500	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Lead	841	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Magnesium	12200	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Manganese	735	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Mercury	1.5	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Nickel	32.8	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Potassium	3020	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Selenium	6.7	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Silver	1.6	FALSE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Sodium	330	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Thallium	4	FALSE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Vanadium	46	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR7	2005-04-26	Unk	Sediment	Zinc	1230	TRUE	mg/kg	13.19523976	86.80476024	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	-2.5812	-3.1691	1.1697	2
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Aluminum	11100	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Arsenic	1.9	FALSE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Barium	119	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Beryllium	0.99	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Cadmium	0.34	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Calcium	2520	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Chromium	13.9	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Cobalt	6.4	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Copper	11.9	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Iron	13700	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Lead	10.8	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Magnesium	2920	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Manganese	265	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Mercury	0.022	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Nickel	12.1	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Potassium	1560	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Selenium	2	FALSE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Silver	0.98	FALSE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Sodium	162	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Vanadium	23.3	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR8	2005-04-26	Unk	Sediment	Zinc	55.2	TRUE	mg/kg	67.58534167	32.41465833	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	2.4826	-0.3352	1.6926	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Aluminum	8670	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Arsenic	1.2	FALSE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Barium	90.2	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Beryllium	0.82	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Cadmium	0.1	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Calcium	2270	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Chromium	14.9	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Cobalt	6.2	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Copper	11.3	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Iron	14300	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Lead	5.4	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Magnesium	2930	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Manganese	189	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Mercury	0.005	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Nickel	11.8	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Potassium	1410	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Selenium	2.7	FALSE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Silver	1.1	FALSE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Sodium	165	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Vanadium	24.9	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FR9	2005-04-26	Unk	Sediment	Zinc	30.9	TRUE	mg/kg	72.10813203	27.89186797	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.9302	0.7073	1.5939	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Aluminum	11200	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Arsenic	1.6	FALSE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Barium	108	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Beryllium	0.98	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Cadmium	0.52	FALSE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Calcium	2460	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Chromium	16	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Cobalt	6.6	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Copper	11.8	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Iron	15600	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Lead	5.3	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Magnesium	3150	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Manganese	212	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Mercury	0.006	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Nickel	12.6	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Potassium	1470	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Selenium	2	FALSE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Silver	1	FALSE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Sodium	177	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Vanadium	26.4	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS0	2005-04-26	Unk	Sediment	Zinc	35.8	TRUE	mg/kg	67.75559589	32.24440411	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	3.3458	0.013	1.7077	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Aluminum	6460	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Arsenic	1.2	FALSE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Barium	69.4	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Beryllium	0.71	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Cadmium	0.058	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Calcium	2000	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Chromium	14.7	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Cobalt	6.2	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Copper	11.4	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Iron	12500	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Lead	4.4	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Magnesium	3240	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Manganese	212	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Mercury	0.007	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Nickel	12.4	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Potassium	1560	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Selenium	3	FALSE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Silver	1	FALSE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Sodium	133	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Vanadium	21.3	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM644C1	MJ4FS1	2005-04-26	Unk	Sediment	Zinc	32.8	TRUE	mg/kg	70.81924996	29.18075004	168.1900024	399177	5313958	OU 2 Middle Laucustrine CSM Unit	4.1474	0.7183	1.5578	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Aluminum	11500	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Arsenic	0.76	FALSE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Barium	64.4	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Cadmium	0.2	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Calcium	4110	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Chromium	8.4	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Cobalt	10	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Copper	9.5	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Iron	26600	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Lead	9.6	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Magnesium	6910	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Manganese	516	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Mercury	0.012	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Nickel	6.6	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Potassium	1060	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Selenium	4.2	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Silver	0.85	FALSE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Sodium	78.4	FALSE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Thallium	2.1	FALSE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Vanadium	33.6	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X1	MJ4FS2	2005-04-28	Unk	Sediment	Zinc	83.1	TRUE	mg/kg	74.2665052	13.6739811	-346.25	399407	5312139	OU 2 Middle Laucustrine CSM Unit	3.1546	0.4079	1.7468	3
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Aluminum	23200	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Arsenic	8.4	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Barium	283	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Beryllium	2.1	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Cadmium	4.8	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Calcium	6430	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Chromium	52.7	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Cobalt	17.2	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Copper	88.1	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Iron	37900	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Lead	185	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Magnesium	11200	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Manganese	1130	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Mercury	1	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Nickel	39.7	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Potassium	4030	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Selenium	4.6	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Silver	2.6	FALSE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Sodium	457	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Thallium	6.5	FALSE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Vanadium	57.2	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM643X2	MJ4FS3	2005-04-28	Unk	Sediment	Zinc	495	TRUE	mg/kg	1.036484245	98.96351575	-0.2	399026	5312142	OU 2 Middle Laucustrine CSM Unit	-0.3935	-1.9714	2.3385	2
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Aluminum	12000	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Arsenic	6	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Barium	125	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Cadmium	0.23	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Calcium	8370	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Chromium	14	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Cobalt	11	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Copper	11.8	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Iron	24900	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Lead	11.1	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Magnesium	8090	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Manganese	457	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Mercury	0.017	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Nickel	12.7	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Potassium	2430	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Selenium	2.3	FALSE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Silver	0.93	FALSE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Sodium	320	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Vanadium	33.4	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM603A1(X1)	MJ4FS4	2005-04-28	Unk	Sediment	Zinc	94.2	TRUE	mg/kg	48.52368492	47.35540766	-438	360691	5312526	OU 2 Lower Laucustrine CSM Unit	3.1991	0.3063	-0.0354	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Aluminum	10500	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Arsenic	4.2	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Barium	74.2	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Beryllium	0.86	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Cadmium	0.67	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Calcium	2690	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Chromium	13.5	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Cobalt	6.3	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Copper	11.5	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Iron	17800	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Lead	16.8	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Magnesium	5940	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Manganese	243	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Mercury	0.075	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Nickel	11.3	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Potassium	1740	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Selenium	1.7	FALSE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Silver	1	FALSE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Vanadium	21.1	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM605A2(X8)	MJ4FS5	2005-04-28	Unk	Sediment	Zinc	140	TRUE	mg/kg	71.6729109	28.3270891	1018.940002	364094	5312634	OU 2 Lower Laucustrine CSM Unit	1.7695	-1.4581	1.2668	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Aluminum	4740	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Arsenic	1.8	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Barium	45.8	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Beryllium	0.47	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Cadmium	0.37	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Calcium	1320	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Chromium	10.3	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Cobalt	3.8	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Copper	6.4	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Iron	11500	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Lead	13.2	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Magnesium	2470	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Manganese	111	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Mercury	0.01	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Nickel	7.6	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Potassium	823	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Selenium	1	FALSE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Silver	0.84	FALSE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Sodium	63	FALSE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Thallium	2.1	FALSE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Vanadium	16.9	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM643X3	MJ4FS6	2005-04-28	Unk	Sediment	Zinc	88.7	TRUE	mg/kg	76.33664159	4.754282055	467.2099915	398544	5312133	OU 2 Middle Laucustrine CSM Unit	2.0439	-1.0137	1.7254	3
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Aluminum	29900	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Arsenic	10.6	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Barium	329	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Beryllium	2.5	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Cadmium	7.9	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Calcium	6090	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Chromium	51.4	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Cobalt	18.5	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Copper	89.7	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Iron	43300	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Lead	227	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Magnesium	10900	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Manganese	1440	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Mercury	0.97	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Nickel	39.1	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Potassium	4640	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Selenium	4.7	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Silver	3	FALSE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Sodium	463	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Thallium	7.5	FALSE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Vanadium	60.2	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622X2	MJ4FS7	2005-04-28	Unk	Sediment	Zinc	799	TRUE	mg/kg	0.867227474	99.13277253	-96.6200027	384728	5308642	OU 2 Lower Laucustrine CSM Unit	-0.6941	-2.023	2.5426	2
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Aluminum	9630	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Arsenic	13.7	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Barium	68.7	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Beryllium	0.77	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Cadmium	0.16	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Calcium	15300	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Chromium	12	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Cobalt	5.7	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Copper	11.6	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Iron	17800	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Lead	10.9	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Magnesium	9140	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Manganese	413	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Mercury	0.019	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Nickel	10	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Potassium	1810	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Selenium	2.7	FALSE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Silver	1	FALSE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Sodium	137	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Vanadium	17.8	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM622A1(X3)	MJ4FS8	2005-04-28	Unk	Sediment	Zinc	62.5	TRUE	mg/kg	83.12835701	15.46609106	521.9899902	385243	5309155	OU 2 Lower Laucustrine CSM Unit	2.8942	-0.3712	-1.738	3
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Aluminum	18200	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Arsenic	7.8	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Barium	200	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Beryllium	1.6	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Cadmium	4.7	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Calcium	4870	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Chromium	38.2	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Cobalt	14.3	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Copper	51.6	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Iron	31200	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Lead	214	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Magnesium	8590	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Manganese	758	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Mercury	0.81	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Nickel	32.3	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Potassium	3020	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Selenium	2.7	FALSE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Silver	1.4	FALSE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Sodium	291	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Thallium	3.5	FALSE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Vanadium	40.7	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X2	MJ4FS9	2005-04-28	Unk	Sediment	Zinc	669	TRUE	mg/kg	3.759492719	95.23797589	-531.9500122	399234	5310426	OU 2 Middle Laucustrine CSM Unit	-0.7417	-2.329	2.3789	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Aluminum	24200	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Arsenic	10	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Barium	293	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Beryllium	2.2	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Cadmium	4.8	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Calcium	6740	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Chromium	54.7	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Cobalt	18.4	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Copper	97.5	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Iron	40900	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Lead	208	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Magnesium	12200	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Manganese	1000	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Mercury	1.2	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Nickel	43.2	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Potassium	4060	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Selenium	4.8	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Silver	2.2	FALSE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Sodium	465	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Thallium	5.4	FALSE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Vanadium	59.9	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM642X3	MJ4FT0	2005-04-28	Unk	Sediment	Zinc	563	TRUE	mg/kg	0.532623169	99.46737683	-253.25	398950	5310420	OU 2 Middle Laucustrine CSM Unit	-0.4793	-2.1325	2.2405	2
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Aluminum	4100	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Arsenic	0.73	FALSE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Barium	36.7	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Beryllium	0.63	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Cadmium	0.036	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Calcium	1460	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Chromium	2.6	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Cobalt	3.4	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Copper	3.4	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Iron	9860	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Lead	3.2	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Magnesium	1840	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Manganese	158	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Mercury	0.098	FALSE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Nickel	2.4	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Potassium	1140	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Selenium	0.76	FALSE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Silver	0.73	FALSE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Sodium	88	FALSE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Thallium	1.8	FALSE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Vanadium	13.6	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM603X3	MJ4FT3	2005-04-28	Unk	Sediment	Zinc	29.4	TRUE	mg/kg	87.89096715	6.803541666	851.7399902	360888	5313946	OU 2 Lower Laucustrine CSM Unit	2.7968	-0.2316	1.419	3
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Aluminum	21100	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Arsenic	13	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Barium	264	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Beryllium	1.9	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Cadmium	7.3	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Calcium	6460	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Chromium	50	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Cobalt	16.3	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Copper	77.2	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Iron	35100	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Lead	254	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Magnesium	10600	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Manganese	1060	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Mercury	1.3	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Nickel	38.6	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Potassium	3360	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Selenium	4.1	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Silver	1.8	FALSE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Sodium	402	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Thallium	4.5	FALSE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Vanadium	49.5	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X4	MJ4FT4	2005-04-28	Unk	Sediment	Zinc	640	TRUE	mg/kg	1.277726669	98.466728	-11.4200001	398704	5310426	OU 2 Middle Laucustrine CSM Unit	-0.9706	-2.4071	2.1075	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Aluminum	23200	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Arsenic	12.8	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Barium	365	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Beryllium	2.1	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Cadmium	9.4	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Calcium	11600	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Chromium	53	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Cobalt	17.2	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Copper	74	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Iron	38300	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Lead	363	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Magnesium	13700	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Manganese	779	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Mercury	1.8	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Nickel	40.2	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Potassium	3950	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Selenium	5.4	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Silver	2	FALSE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Sodium	475	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Thallium	5.1	FALSE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Vanadium	57.8	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM642X5	MJ4FT5	2005-04-28	Unk	Sediment	Zinc	1040	TRUE	mg/kg	0.985343023	98.76832122	106.6800003	398582	5310423	OU 2 Middle Laucustrine CSM Unit	-1.5463	-2.8398	1.5757	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Aluminum	23300	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Arsenic	10.6	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Barium	280	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Beryllium	2	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Cadmium	10.4	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Calcium	5060	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Chromium	40.6	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Cobalt	14.5	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Copper	80.6	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Iron	33200	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Lead	239	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Magnesium	8500	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Manganese	1380	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Mercury	1.3	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Nickel	31.2	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Potassium	3680	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Selenium	4.1	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Sodium	428	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Thallium	10	FALSE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Vanadium	46.9	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X2	MJ4FT6	2005-04-28	Unk	Sediment	Zinc	863	TRUE	mg/kg	6.403166657	92.43262122	22.5300007	362201	5313237	OU 2 Lower Laucustrine CSM Unit	-1.3694	-2.2894	2.5675	2
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Aluminum	6690	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Arsenic	3.4	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Barium	42.2	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Cadmium	0.21	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Calcium	1430	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Chromium	8.6	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Cobalt	4.5	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Copper	5.5	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Iron	13700	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Lead	7.5	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Magnesium	4610	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Manganese	130	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Nickel	7.9	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Potassium	1090	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Selenium	1.8	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Sodium	89	FALSE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Vanadium	14	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM604X1	MJ4FT7	2005-04-28	Unk	Sediment	Zinc	101	TRUE	mg/kg	87.9	5.1	-1126.910034	361424	5312033	OU 2 Lower Laucustrine CSM Unit	2.3125	-1.6297	1.0694	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Aluminum	6820	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Arsenic	10	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Barium	67.4	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Beryllium	0.57	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Cadmium	0.079	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Calcium	15000	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Chromium	14	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Cobalt	6.1	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Copper	12.1	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Iron	16000	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Lead	10	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Magnesium	6450	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Manganese	302	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Nickel	12.4	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Potassium	1200	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Selenium	2	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Sodium	99.1	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Vanadium	18.4	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X1	MJ4FT8	2005-04-28	Unk	Sediment	Zinc	41.4	TRUE	mg/kg	89.19722498	10.80277502	-299.4200134	399786	5307107	OU 2 Middle Laucustrine CSM Unit	2.6402	-0.6402	-1.5815	3
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Aluminum	14500	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Arsenic	6.8	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Barium	171	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Cadmium	2.3	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Calcium	5170	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Chromium	30.2	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Cobalt	12.1	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Copper	49	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Iron	26600	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Lead	82.2	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Magnesium	7720	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Manganese	762	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Mercury	0.39	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Nickel	26.2	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Potassium	2360	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Selenium	4.6	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Sodium	235	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Thallium	5.2	FALSE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Vanadium	34.8	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM640X2	MJ4FT9	2005-04-28	Unk	Sediment	Zinc	319	TRUE	mg/kg	14.0504434	85.9495566	-4.8400002	399454	5307122	OU 2 Middle Laucustrine CSM Unit	0.0484	-1.6458	1.7913	2
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Aluminum	7810	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Arsenic	10.4	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Barium	63.2	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Beryllium	0.68	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Cadmium	0.068	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Calcium	12300	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Chromium	11.1	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Cobalt	5.8	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Copper	12.2	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Iron	16000	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Lead	9.2	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Magnesium	6760	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Manganese	341	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Mercury	0.005	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Nickel	9.7	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Potassium	1670	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Selenium	2.3	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Sodium	116	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Vanadium	17.5	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM622X1	MJ4FW0	2005-04-28	Unk	Sediment	Zinc	45.5	TRUE	mg/kg	85.48850215	14.51149785	-760.210022	384056	5308159	OU 2 Lower Laucustrine CSM Unit	3.5943	0.477	-1.6209	3
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Aluminum	5200	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Arsenic	5	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Barium	143	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Beryllium	0.44	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Cadmium	0.53	FALSE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Calcium	40800	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Chromium	12.5	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Cobalt	5	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Copper	9.4	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Iron	11600	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Lead	5.5	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Magnesium	6270	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Manganese	189	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Mercury	0.011	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Nickel	10.2	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Potassium	881	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Selenium	2.5	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Sodium	148	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Thallium	2.7	FALSE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Vanadium	15.3	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X1	MJ4FW1	2005-04-28	Unk	Sediment	Zinc	36.7	TRUE	mg/kg	50.6	47	-356.8900146	385001	5303410	OU 2 Lower Laucustrine CSM Unit	1.7022	-0.3253	-2.7783	2
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Aluminum	7900	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Arsenic	2.7	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Barium	62.3	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Beryllium	0.7	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Cadmium	0.088	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Calcium	2180	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Chromium	12.1	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Cobalt	4.8	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Copper	8.1	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Iron	13500	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Lead	6	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Magnesium	3560	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Manganese	190	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Nickel	9.4	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Potassium	1210	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Selenium	1.6	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Sodium	149	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Vanadium	19.8	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM625X3	MJ4FW4	2005-04-28	Unk	Sediment	Zinc	40.6	TRUE	mg/kg	78.0480945	21.9519055	921.9799805	385653	5304538	OU 2 Lower Laucustrine CSM Unit	3.0487	-0.6801	1.0632	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Aluminum	11700	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Arsenic	8.1	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Barium	267	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Beryllium	1.1	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Cadmium	3.6	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Calcium	16800	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Chromium	29.1	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Cobalt	10.2	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Copper	43.3	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Iron	24400	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Lead	162	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Magnesium	10500	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Manganese	437	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Mercury	0.47	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Nickel	25.8	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Potassium	1750	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Selenium	3.7	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Sodium	261	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Thallium	3.2	FALSE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Vanadium	33.9	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW5	2005-04-29	Unk	Sediment	Zinc	457	TRUE	mg/kg	12.69581684	87.30418316	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.3335	-2.29	0.1736	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Aluminum	8840	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Arsenic	6.9	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Barium	257	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Beryllium	0.82	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Cadmium	3.8	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Calcium	16700	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Chromium	24.1	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Cobalt	8.5	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Copper	34.4	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Iron	19700	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Lead	165	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Magnesium	9510	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Manganese	362	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Mercury	0.6	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Nickel	22	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Potassium	1440	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Selenium	2.8	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Sodium	192	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Thallium	2.9	FALSE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Vanadium	27.9	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW6	2005-04-29	Unk	Sediment	Zinc	439	TRUE	mg/kg	22.06953987	77.93046013	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	-1.8279	-2.5949	-0.0881	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Aluminum	11000	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Arsenic	7.4	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Barium	111	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Beryllium	0.98	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Cadmium	1.6	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Calcium	17300	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Chromium	28.9	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Cobalt	9.9	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Copper	28	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Iron	23100	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Lead	96.2	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Magnesium	8410	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Manganese	428	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Mercury	0.4	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Nickel	26	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Potassium	1690	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Selenium	2.5	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Sodium	259	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Thallium	3	FALSE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Vanadium	33.5	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FW9	2005-04-29	Unk	Sediment	Zinc	193	TRUE	mg/kg	1.755463881	98.24453612	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	0.1359	-2.1025	0.3454	2
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Aluminum	9220	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Arsenic	7.1	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Barium	87.4	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Beryllium	0.86	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Cadmium	0.46	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Chromium	25.6	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Cobalt	8.7	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Copper	21.6	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Iron	20100	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Lead	22.6	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Magnesium	7040	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Manganese	349	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Mercury	0.049	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Nickel	22.8	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Potassium	1430	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Selenium	2.4	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Sodium	213	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Vanadium	30.8	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM661C1	MJ4FX0	2005-04-29	Unk	Sediment	Zinc	75.3	TRUE	mg/kg	5.090785678	94.90921432	48.4399986	407639	5331993	OU 2 Upper Laucustrine CSM Unit	2.0986	-0.8377	-0.3209	3
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Aluminum	14300	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Arsenic	6.8	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Barium	184	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Beryllium	1.3	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Cadmium	3.5	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Calcium	3750	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Chromium	33.6	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Cobalt	11.5	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Copper	52.6	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Iron	28100	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Lead	148	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Magnesium	7190	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Manganese	857	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Mercury	1	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Nickel	27.2	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Potassium	2490	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Selenium	5.4	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Silver	2.6	FALSE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Sodium	280	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Thallium	6.6	FALSE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Vanadium	36.6	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X6	MJ4FX1	2005-04-29	Unk	Sediment	Zinc	404	TRUE	mg/kg	3.35060182	96.64939818	227.9100037	398460	5310432	OU 2 Middle Laucustrine CSM Unit	-0.6624	-2.0529	2.4027	2
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Aluminum	9130	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Arsenic	6.2	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Barium	90.7	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Cadmium	0.28	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Calcium	1920	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Chromium	13.7	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Cobalt	6.8	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Copper	10.8	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Iron	19700	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Lead	7.9	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Magnesium	2540	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Manganese	222	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Mercury	0.013	FALSE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Nickel	9.8	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Potassium	807	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Selenium	2.3	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Silver	1	FALSE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Sodium	75.2	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Vanadium	25.6	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM642X7	MJ4FX2	2005-04-29	Unk	Sediment	Zinc	43	TRUE	mg/kg	80.94448591	11.74246029	324.5100098	398361	5310428	OU 2 Middle Laucustrine CSM Unit	3.082	-0.2304	1.3105	3
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Aluminum	17900	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Arsenic	8.3	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Barium	314	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Cadmium	8.1	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Calcium	7740	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Chromium	36.6	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Cobalt	13.4	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Copper	56	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Iron	28000	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Lead	314	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Magnesium	9400	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Manganese	749	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Mercury	0.86	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Nickel	30.1	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Potassium	3070	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Selenium	7.9	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Silver	2.2	FALSE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Sodium	290	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Thallium	5.6	FALSE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Vanadium	43.2	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X2	MJ4FX3	2005-04-29	Unk	Sediment	Zinc	823	TRUE	mg/kg	3.134141245	96.86585875	-17.3400002	398824	5308762	OU 2 Middle Laucustrine CSM Unit	-1.6462	-2.6085	1.7571	2
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Aluminum	6260	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Arsenic	2.6	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Barium	58.5	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Beryllium	0.68	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Cadmium	0.052	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Calcium	3460	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Chromium	8.9	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Cobalt	5.1	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Copper	8.6	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Iron	14400	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Lead	6.4	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Magnesium	5080	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Manganese	221	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Mercury	0.012	FALSE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Nickel	6.9	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Potassium	1140	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Selenium	2.1	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Silver	0.99	FALSE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Sodium	56.3	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Vanadium	18.2	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM641X3	MJ4FX4	2005-04-29	Unk	Sediment	Zinc	39.4	TRUE	mg/kg	85.67009481	14.02860357	418.5799866	398383	5308757	OU 2 Middle Laucustrine CSM Unit	3.4846	0.0483	0.0935	3
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Aluminum	22800	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Arsenic	10.5	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Barium	302	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Beryllium	2.1	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Cadmium	3.5	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Calcium	5050	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Chromium	34.1	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Cobalt	15.6	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Copper	54.5	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Iron	33500	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Lead	96.2	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Magnesium	8230	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Manganese	2200	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Mercury	0.3	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Nickel	30.8	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Potassium	3520	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Selenium	4	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Sodium	435	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Thallium	7.9	FALSE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Vanadium	46.5	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM600X2	MJ4FX5	2005-04-29	Unk	Sediment	Zinc	502	TRUE	mg/kg	0.854214123	98.86104784	-53.8800011	356147	5312020	OU 2 Lower Laucustrine CSM Unit	0.1369	-0.8949	2.0969	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Aluminum	20800	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Arsenic	10	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Barium	237	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Beryllium	1.8	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Cadmium	9.8	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Calcium	5010	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Chromium	37.1	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Cobalt	13	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Copper	61.4	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Iron	30000	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Lead	220	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Magnesium	8060	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Manganese	983	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Mercury	1.8	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Nickel	27.8	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Potassium	3100	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Selenium	3.5	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Sodium	405	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Thallium	7.7	FALSE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Vanadium	39.7	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616X2	MJ4FX8	2005-04-29	Unk	Sediment	Zinc	826	TRUE	mg/kg	1.507386192	98.49261381	-56.6899986	374822	5310939	OU 2 Lower Laucustrine CSM Unit	-1.4987	-2.6166	2.4418	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Aluminum	22900	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Arsenic	10.3	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Barium	266	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Beryllium	2	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Cadmium	4.1	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Calcium	5830	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Chromium	40.2	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Cobalt	14.6	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Copper	64.1	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Iron	34800	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Lead	135	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Magnesium	9920	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Manganese	913	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Mercury	0.44	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Nickel	30.6	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Potassium	3490	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Selenium	6.2	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Silver	3	FALSE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Sodium	353	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Thallium	7.4	FALSE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Vanadium	48	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM616T1	MJ4FX9	2005-04-29	Unk	Sediment	Zinc	551	TRUE	mg/kg	4.911591356	95.08840864	878.2600098	374350	5312165	OU 2 Lower Laucustrine CSM Unit	-0.2093	-1.8241	1.9358	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Aluminum	20600	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Arsenic	9.9	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Barium	243	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Beryllium	1.8	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Cadmium	5.4	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Calcium	5650	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Chromium	40.1	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Cobalt	15	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Copper	60.8	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Iron	33100	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Lead	180	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Magnesium	9230	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Manganese	829	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Mercury	0.81	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Nickel	32	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Potassium	3160	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Selenium	4.9	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Silver	2.6	FALSE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Sodium	300	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Thallium	6.6	FALSE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Vanadium	46.2	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY0	2005-04-29	Unk	Sediment	Zinc	635	TRUE	mg/kg	1.705514497	98.2944855	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-0.6961	-2.2865	2.1138	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Aluminum	17000	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Antimony	0.71	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Arsenic	12.7	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Barium	279	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Beryllium	1.6	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Cadmium	9.3	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Calcium	8910	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Chromium	30.4	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Cobalt	12.2	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Copper	41.5	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Iron	26900	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Lead	261	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Magnesium	9140	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Manganese	654	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Mercury	0.83	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Nickel	24.4	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Potassium	2780	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Selenium	3.7	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Silver	2.1	FALSE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Sodium	215	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Thallium	5.2	FALSE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Vanadium	37.8	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY1	2005-04-29	Unk	Sediment	Zinc	927	TRUE	mg/kg	1.364815068	98.63518493	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	-1.7254	-2.9125	1.2401	2
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Aluminum	8380	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Antimony	7.3	FALSE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Arsenic	3.1	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Barium	84.6	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Beryllium	0.76	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Cadmium	0.079	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Calcium	2230	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Chromium	11.2	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Cobalt	5.6	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Copper	9.5	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Iron	13600	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Lead	6.2	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Magnesium	3560	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Manganese	221	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Mercury	0.011	FALSE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Nickel	9.6	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Potassium	1440	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Selenium	1.6	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Silver	1.2	FALSE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Sodium	111	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Thallium	3	FALSE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Vanadium	19.1	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM637C1	MJ4FY4	2005-04-29	Unk	Sediment	Zinc	37.1	TRUE	mg/kg	80.67923465	19.32076535	-231.5800018	399096	5302401	OU 2 Middle Laucustrine CSM Unit	3.596	0.2213	0.7296	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Aluminum	9270	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Arsenic	9	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Barium	60.7	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Beryllium	0.66	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Cadmium	0.16	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Calcium	2660	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Chromium	11.2	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Cobalt	5.2	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Copper	9.5	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Iron	17000	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Lead	8.8	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Magnesium	6700	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Manganese	276	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Mercury	0.009	FALSE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Nickel	9.4	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Potassium	1580	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Selenium	3.4	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Silver	0.91	FALSE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Sodium	119	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Vanadium	15.9	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM619X1	MJ4FY5	2005-04-29	Unk	Sediment	Zinc	67.4	TRUE	mg/kg	82.25004012	14.94142192	-753.2800293	379781	5308898	OU 2 Lower Laucustrine CSM Unit	3.3553	-0.2521	-0.0829	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Aluminum	6520	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Arsenic	5.2	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Barium	46.7	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Beryllium	0.53	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Cadmium	0.038	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Calcium	10700	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Chromium	9.9	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Cobalt	4.5	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Copper	9.6	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Iron	14200	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Lead	5.3	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Magnesium	6540	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Manganese	277	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Mercury	0.009	FALSE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Nickel	8.8	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Potassium	1190	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Selenium	3	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Silver	0.88	FALSE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Sodium	113	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Vanadium	15.2	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X1	MJ4FY6	2005-04-29	Unk	Sediment	Zinc	38.8	TRUE	mg/kg	86.99661234	11.09908393	-839.7000122	356540	5311226	OU 2 Lower Laucustrine CSM Unit	3.7375	0.4557	-1.4483	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Aluminum	5630	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Arsenic	3.7	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Barium	38.4	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Beryllium	0.47	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Cadmium	0.084	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Calcium	3220	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Chromium	8.4	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Cobalt	4.3	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Copper	6	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Iron	12000	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Lead	5.7	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Magnesium	4340	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Manganese	171	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Mercury	0.007	FALSE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Nickel	7.2	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Potassium	1020	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Selenium	2.3	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Silver	0.81	FALSE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Sodium	95.4	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Thallium	2	FALSE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Vanadium	14.3	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM600X3	MJ4FY7	2005-04-29	Unk	Sediment	Zinc	47.7	TRUE	mg/kg	90.05128616	8.245853033	415.2600098	356061	5312512	OU 2 Lower Laucustrine CSM Unit	3.5074	-0.0815	-0.0832	3
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Aluminum	21600	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Antimony	10.8	FALSE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Arsenic	10.9	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Barium	238	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Beryllium	1.9	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Cadmium	3	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Calcium	6000	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Chromium	36.7	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Cobalt	15	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Copper	59.8	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Iron	33000	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Lead	109	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Magnesium	9040	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Manganese	898	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Mercury	0.25	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Nickel	29.6	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Potassium	3440	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Selenium	4.7	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Silver	1.8	FALSE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Sodium	258	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Thallium	4.5	FALSE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Vanadium	47.5	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM639T2	MJ4FY8	2005-04-29	Unk	Sediment	Zinc	457	TRUE	mg/kg	7.252410755	92.74758924	-433.3999939	399949	5304921	OU 2 Middle Laucustrine CSM Unit	0.2257	-1.6065	1.74	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Aluminum	20500	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Antimony	15.1	FALSE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Arsenic	11	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Barium	219	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Beryllium	1.8	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Cadmium	7.2	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Calcium	5010	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Chromium	36.4	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Cobalt	14.1	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Copper	49.6	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Iron	30600	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Lead	190	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Magnesium	8260	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Manganese	712	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Mercury	1	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Nickel	27.7	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Potassium	3170	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Selenium	4.1	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Silver	2.5	FALSE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Sodium	256	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Thallium	6.3	FALSE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Vanadium	43.1	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM637X2	MJ4FY9	2005-04-29	Unk	Sediment	Zinc	762	TRUE	mg/kg	4.636068614	95.36393139	-394.7200012	399250	5302343	OU 2 Middle Laucustrine CSM Unit	-0.9473	-2.6981	2.2073	2
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Aluminum	6820	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Arsenic	9.1	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Barium	59.1	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Beryllium	0.51	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Cadmium	0.49	FALSE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Calcium	11900	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Chromium	9.1	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Cobalt	4.6	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Copper	8.1	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Iron	14100	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Lead	5.8	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Magnesium	6940	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Manganese	318	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Mercury	0.006	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Nickel	8.2	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Potassium	1420	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Selenium	4.1	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Silver	0.98	FALSE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Sodium	79.3	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Vanadium	14.8	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM604X3	MJ4FZ0	2005-04-29	Unk	Sediment	Zinc	36.3	TRUE	mg/kg	89.62727072	6.96789441	779.2999878	362631	5313931	OU 2 Lower Laucustrine CSM Unit	2.8691	-0.5882	-1.7229	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Aluminum	10900	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Arsenic	3.9	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Barium	109	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Beryllium	1.1	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Cadmium	0.64	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Calcium	6810	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Chromium	16.9	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Cobalt	9.5	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Copper	20.1	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Iron	20000	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Lead	13.9	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Magnesium	7630	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Manganese	324	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Mercury	0.026	FALSE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Nickel	15.1	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Potassium	2250	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Selenium	5.7	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Silver	1.3	FALSE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Sodium	177	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Thallium	3.3	FALSE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Vanadium	24.6	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM616X1	MJ4FZ1	2005-04-29	Unk	Sediment	Zinc	101	TRUE	mg/kg	25.96532373	73.61588073	-694.7600098	374831	5310174	OU 2 Lower Laucustrine CSM Unit	2.2277	-0.6913	0.5581	3
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Aluminum	23700	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Antimony	18.6	FALSE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Arsenic	13.7	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Beryllium	2.1	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Cadmium	7.9	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Calcium	6180	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Chromium	48.4	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Cobalt	17.6	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Copper	75.2	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Iron	40700	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Lead	243	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Magnesium	10600	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Manganese	956	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Mercury	1	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Nickel	37.8	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Potassium	3640	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Selenium	5.7	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Silver	3.1	FALSE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Sodium	298	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Thallium	7.8	FALSE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Vanadium	53.7	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM637X3	MJ4FZ2	2005-04-29	Unk	Sediment	Zinc	798	TRUE	mg/kg	0.831393415	99.16860658	-230.75	399094	5302396	OU 2 Middle Laucustrine CSM Unit	-0.8667	-2.4561	2.1562	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Aluminum	13000	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Arsenic	6.4	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Barium	172	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Beryllium	1.2	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Cadmium	5.9	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Calcium	5200	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Chromium	24.8	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Cobalt	10.4	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Copper	44.9	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Iron	22100	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Lead	159	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Magnesium	6250	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Manganese	777	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Mercury	0.76	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Nickel	20.5	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Potassium	2250	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Selenium	5.6	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Silver	2.5	FALSE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Sodium	216	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Thallium	6.3	FALSE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Vanadium	30.2	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X2	MJ4FZ3	2005-04-29	Unk	Sediment	Zinc	578	TRUE	mg/kg	21.51369383	78.48630617	5	379774	5309880	OU 2 Lower Laucustrine CSM Unit	-1.3746	-2.3492	2.0499	2
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Aluminum	6840	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Arsenic	8.3	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Barium	93	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Cadmium	0.044	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Calcium	12400	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Chromium	10.1	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Cobalt	6	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Copper	11.3	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Iron	14800	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Lead	7.9	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Magnesium	6270	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Manganese	324	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Mercury	0.011	FALSE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Nickel	8.7	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Potassium	1780	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Selenium	3.1	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Silver	1	FALSE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Sodium	75.8	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Vanadium	16.9	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM619X3	MJ4FZ4	2005-04-29	Unk	Sediment	Zinc	41.1	TRUE	mg/kg	81.44445619	18.55554381	402.9700012	380444	5310199	OU 2 Lower Laucustrine CSM Unit	3.3274	0.4152	-1.8088	3
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Aluminum	28800	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Arsenic	11.7	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Barium	326	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Beryllium	2.3	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Cadmium	7.1	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Calcium	5970	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Chromium	45.7	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Cobalt	17.9	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Copper	86.1	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Iron	41300	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Lead	249	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Magnesium	10100	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Manganese	1680	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Mercury	1.2	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Nickel	35.9	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Potassium	4430	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Selenium	7.8	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Silver	3.9	FALSE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Sodium	462	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Thallium	9.7	FALSE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Vanadium	56.2	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X3	MJ4FZ5	2005-04-29	Unk	Sediment	Zinc	920	TRUE	mg/kg	0.979847797	99.0201522	-625.4199829	362481	5311767	OU 2 Lower Laucustrine CSM Unit	-0.9269	-1.9438	2.4719	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Aluminum	25200	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Arsenic	10.2	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Barium	268	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Beryllium	2	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Cadmium	7.8	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Calcium	5060	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Chromium	41.2	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Cobalt	15.1	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Copper	69.2	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Iron	33700	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Lead	242	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Magnesium	8400	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Manganese	1220	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Mercury	1.2	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Nickel	30.2	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Potassium	4100	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Selenium	8.6	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Silver	4.2	FALSE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Sodium	395	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Thallium	10.5	FALSE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Vanadium	49	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM605X4	MJ4FZ6	2005-04-29	Unk	Sediment	Zinc	874	TRUE	mg/kg	0.653231865	99.0201522	-269.8699951	362818	5311934	OU 2 Lower Laucustrine CSM Unit	-1.0809	-2.287	2.5802	2
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Aluminum	7110	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Arsenic	2.9	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Barium	74.5	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Beryllium	0.49	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Cadmium	0.36	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Calcium	1590	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Chromium	13.2	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Cobalt	5	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Copper	10.1	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Iron	12600	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Lead	17	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Magnesium	3280	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Manganese	336	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Mercury	0.037	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Nickel	11.8	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Potassium	1010	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Selenium	2.8	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Silver	1.2	FALSE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Sodium	80.3	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Thallium	3	FALSE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Vanadium	15.9	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X5	MJ4G01	2005-04-30	Unk	Sediment	Zinc	73.5	TRUE	mg/kg	88.31017822	11.68982178	273.5599976	398612	5302552	OU 2 Middle Laucustrine CSM Unit	1.8372	-0.7566	1.5298	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Aluminum	8050	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Arsenic	3.7	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Barium	72.6	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Beryllium	0.58	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Cadmium	0.57	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Calcium	2120	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Chromium	16.3	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Cobalt	6.3	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Copper	12.2	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Iron	15700	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Lead	24.7	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Magnesium	4000	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Manganese	392	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Mercury	0.02	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Nickel	14.8	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Potassium	1160	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Selenium	3	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Silver	0.99	FALSE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Sodium	99.2	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Vanadium	20.1	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X6	MJ4G02	2005-04-30	Unk	Sediment	Zinc	165	TRUE	mg/kg	75.85194187	24.14805813	473.6900024	398421	5302615	OU 2 Middle Laucustrine CSM Unit	1.7377	-0.6536	1.6069	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Aluminum	7540	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Arsenic	4.5	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Barium	70.7	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Beryllium	0.56	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Cadmium	0.086	FALSE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Calcium	2370	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Chromium	17.6	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Cobalt	6.7	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Copper	14.2	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Iron	16400	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Lead	8.3	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Magnesium	4080	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Manganese	285	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Mercury	0.007	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Nickel	16.5	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Potassium	1150	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Selenium	3	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Silver	0.96	FALSE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Sodium	76	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Vanadium	22	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM637X7	MJ4G03	2005-04-30	Unk	Sediment	Zinc	46.6	TRUE	mg/kg	87.30027175	12.69972825	544.5499878	398352	5302631	OU 2 Middle Laucustrine CSM Unit	3.7621	0.389	0.7017	3
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Aluminum	21900	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Arsenic	8.2	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Barium	255	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Beryllium	1.9	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Cadmium	2.8	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Calcium	5880	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Chromium	36.8	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Cobalt	16.2	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Copper	63.2	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Iron	34900	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Lead	103	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Magnesium	9290	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Manganese	959	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Mercury	0.39	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Nickel	32.2	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Potassium	3580	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Selenium	7.3	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Silver	2.6	FALSE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Sodium	283	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Thallium	6.5	FALSE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Vanadium	50.4	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X2	MJ4G04	2005-04-30	Unk	Sediment	Zinc	421	TRUE	mg/kg	0.820097865	99.17990213	4.96	396919	5298579	OU 2 Middle Laucustrine CSM Unit	0.2157	-1.5821	1.9642	2
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Aluminum	8130	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Arsenic	8.7	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Barium	74.4	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Beryllium	0.55	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Cadmium	0.46	FALSE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Calcium	16200	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Chromium	9.7	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Cobalt	4.2	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Copper	8.9	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Iron	15800	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Lead	5.6	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Magnesium	7980	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Manganese	276	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Nickel	9.2	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Potassium	1600	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Selenium	3.5	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Silver	0.91	FALSE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Sodium	78.1	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Vanadium	13.7	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM634X3	MJ4G05	2005-04-30	Unk	Sediment	Zinc	36.1	TRUE	mg/kg	90.12757212	9.87242788	1550.349976	396136	5299934	OU 2 Middle Laucustrine CSM Unit	2.0556	-1.6357	-1.9332	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Aluminum	6970	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Arsenic	6.3	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Barium	65.9	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Beryllium	0.48	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Cadmium	0.48	FALSE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Calcium	2230	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Chromium	8.2	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Cobalt	4.7	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Copper	7.3	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Iron	13800	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Lead	5.2	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Magnesium	4950	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Manganese	254	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Mercury	0.096	FALSE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Nickel	7.1	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Potassium	1190	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Selenium	2.9	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Silver	0.96	FALSE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Sodium	59.4	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Vanadium	12.5	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X1	MJ4G06	2005-04-30	Unk	Sediment	Zinc	38.8	TRUE	mg/kg	95.7411687	4.258831297	-513.4500122	391907	5299446	OU 2 Middle Laucustrine CSM Unit	2.1878	-1.4804	0.0721	3
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Aluminum	25300	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Arsenic	10.9	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Barium	298	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Beryllium	2.1	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Cadmium	5.3	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Calcium	5820	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Chromium	45	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Cobalt	17.1	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Copper	75.8	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Iron	38600	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Lead	173	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Magnesium	9970	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Manganese	1530	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Mercury	0.63	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Nickel	36.4	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Potassium	4020	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Selenium	8.9	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Silver	2.8	FALSE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Sodium	367	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Thallium	7	FALSE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Vanadium	55.4	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X2	MJ4G07	2005-04-30	Unk	Sediment	Zinc	634	TRUE	mg/kg	0.27734635	99.4453073	26.6599998	392173	5299918	OU 2 Middle Laucustrine CSM Unit	-0.3666	-1.725	2.2573	2
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Aluminum	8650	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Arsenic	10.8	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Barium	60.1	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Beryllium	0.6	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Cadmium	0.48	FALSE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Calcium	4590	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Chromium	10.2	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Cobalt	4.4	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Copper	8.2	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Iron	15900	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Lead	6.8	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Magnesium	6920	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Manganese	267	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Mercury	0.004	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Nickel	8.5	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Potassium	1620	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Selenium	3.8	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Silver	0.96	FALSE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Sodium	73.9	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Vanadium	14.2	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM631X3	MJ4G08	2005-04-30	Unk	Sediment	Zinc	46.1	TRUE	mg/kg	92.66857475	7.331425255	477.6900024	392420	5300297	OU 2 Middle Laucustrine CSM Unit	3.193	-0.6674	-0.8792	3
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Aluminum	22000	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Arsenic	9	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Barium	261	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Beryllium	1.9	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Cadmium	4.4	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Calcium	4890	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Chromium	35.4	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Cobalt	14.7	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Copper	70.9	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Iron	34500	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Lead	168	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Magnesium	8220	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Manganese	1140	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Mercury	0.84	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Nickel	28.7	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Potassium	3440	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Selenium	7.7	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Silver	3.1	FALSE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Sodium	285	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Thallium	7.9	FALSE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Vanadium	46.1	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X2	MJ4G09	2005-04-30	Unk	Sediment	Zinc	628	TRUE	mg/kg	0.919117647	98.7745098	-890.8900146	362223	5311580	OU 2 Lower Laucustrine CSM Unit	-0.691	-1.9246	2.3351	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Aluminum	21200	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Arsenic	11	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Barium	257	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Beryllium	1.9	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Cadmium	4.8	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Calcium	4700	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Chromium	34.5	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Cobalt	14.1	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Copper	68	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Iron	31800	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Lead	150	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Magnesium	8160	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Manganese	1210	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Mercury	0.77	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Nickel	29.2	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Potassium	3260	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Selenium	8	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Silver	3.5	FALSE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Sodium	320	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Thallium	8.8	FALSE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Vanadium	43.8	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X6	MJ4G10	2005-04-30	Unk	Sediment	Zinc	633	TRUE	mg/kg	1.172058134	98.82794187	308.8099976	363460	5312300	OU 2 Lower Laucustrine CSM Unit	-0.6843	-1.9195	2.2072	2
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Aluminum	7580	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Arsenic	6.3	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Barium	51.2	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Beryllium	0.53	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Cadmium	0.26	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Calcium	1570	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Chromium	10.7	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Cobalt	4.3	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Copper	6.8	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Iron	15000	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Lead	10.4	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Magnesium	5530	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Manganese	275	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Mercury	0.14	FALSE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Nickel	9.6	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Potassium	1290	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Selenium	2.8	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Silver	0.93	FALSE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Sodium	62.9	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Vanadium	13.3	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X7	MJ4G11	2005-04-30	Unk	Sediment	Zinc	72.8	TRUE	mg/kg	92.70568448	5.592375308	721.4500122	363821	5312516	OU 2 Lower Laucustrine CSM Unit	2.2484	-1.6909	0.7282	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Aluminum	7400	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Arsenic	7	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Barium	75.7	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Beryllium	0.73	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Cadmium	0.5	FALSE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Calcium	10000	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Chromium	11.1	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Cobalt	6	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Copper	9.7	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Iron	16700	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Lead	7.5	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Magnesium	6280	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Manganese	339	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Nickel	9.4	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Potassium	1540	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Selenium	3.4	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Silver	1	FALSE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Sodium	98.7	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Vanadium	19.3	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM605X9	MJ4G12	2005-04-30	Unk	Sediment	Zinc	45.8	TRUE	mg/kg	95.66313767	4.336862329	1238.839966	364374	5312475	OU 2 Lower Laucustrine CSM Unit	2.0885	-1.3239	-0.7561	3
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Aluminum	15100	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Arsenic	0.89	FALSE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Barium	62.3	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Beryllium	1.4	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Cadmium	0.45	FALSE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Calcium	9170	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Chromium	1.2	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Cobalt	5.6	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Copper	9.6	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Iron	15700	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Lead	6.4	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Magnesium	5290	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Manganese	382	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Mercury	0.11	FALSE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Nickel	0.68	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Potassium	2090	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Selenium	2.7	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Silver	0.89	FALSE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Sodium	103	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Thallium	2.2	FALSE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Vanadium	25.4	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X1	MJ4G13	2005-04-30	Unk	Sediment	Zinc	76	TRUE	mg/kg	84.99944936	11.59656798	-334.9700012	363029	5310369	OU 2 Lower Laucustrine CSM Unit	0.9564	-0.8944	0.2855	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Aluminum	21200	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Arsenic	6.7	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Barium	246	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Beryllium	2	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Cadmium	3.4	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Calcium	4950	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Chromium	30.2	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Cobalt	14.1	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Copper	62.1	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Iron	32700	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Lead	128	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Magnesium	7390	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Manganese	891	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Mercury	0.66	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Nickel	24.7	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Potassium	3160	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Selenium	5.1	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Silver	2.7	FALSE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Sodium	281	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Thallium	6.8	FALSE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Vanadium	48.4	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM606X2	MJ4G14	2005-04-30	Unk	Sediment	Zinc	508	TRUE	mg/kg	1.636571927	98.36342807	1.71	363329	5310544	OU 2 Lower Laucustrine CSM Unit	-0.4376	-1.8333	2.3463	2
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Aluminum	10500	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Arsenic	14.6	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Barium	127	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Beryllium	1	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Cadmium	0.53	FALSE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Calcium	13200	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Chromium	17.2	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Cobalt	8.7	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Copper	16.4	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Iron	21700	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Lead	12.1	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Magnesium	7420	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Manganese	444	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Mercury	0.005	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Nickel	15.8	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Potassium	2020	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Selenium	3.4	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Silver	1.1	FALSE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Sodium	134	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Vanadium	26	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM613X1	MJ4G15	2005-04-30	Unk	Sediment	Zinc	60.5	TRUE	mg/kg	70.61127719	27.73940831	-466.1600037	372604	5308263	OU 2 Lower Laucustrine CSM Unit	2.9611	-0.021	-1.1742	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Aluminum	7040	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Arsenic	5.7	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Barium	53	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Beryllium	0.62	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Cadmium	0.047	FALSE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Calcium	4160	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Chromium	11.2	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Cobalt	4.5	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Copper	8.3	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Iron	15400	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Lead	6.8	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Magnesium	5280	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Manganese	227	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Mercury	0.004	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Nickel	8.3	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Potassium	1250	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Selenium	2.7	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Silver	0.94	FALSE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Sodium	94.3	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Vanadium	18.8	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X1	MJ4G16	2005-04-30	Unk	Sediment	Zinc	43.9	TRUE	mg/kg	95.12330521	4.87669479	-770.4299927	363690	5308717	OU 2 Lower Laucustrine CSM Unit	4.0365	0.4682	-0.5044	3
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Aluminum	20200	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Arsenic	7.4	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Barium	219	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Beryllium	1.8	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Cadmium	3.9	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Calcium	4490	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Chromium	28.2	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Cobalt	13.1	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Copper	55.7	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Iron	29300	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Lead	120	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Magnesium	6660	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Manganese	1100	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Mercury	0.61	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Nickel	22.6	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Potassium	3000	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Selenium	6.5	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Silver	2.7	FALSE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Sodium	297	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Thallium	6.8	FALSE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Vanadium	44.4	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X2	MJ4G17	2005-04-30	Unk	Sediment	Zinc	482	TRUE	mg/kg	5.930878309	94.06912169	33.5900002	364218	5309333	OU 2 Lower Laucustrine CSM Unit	-0.4574	-1.7459	2.3771	2
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Aluminum	6770	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Arsenic	4	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Barium	48.4	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Beryllium	0.54	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Cadmium	0.077	FALSE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Calcium	2240	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Chromium	12.5	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Cobalt	4.5	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Copper	7.6	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Iron	13900	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Lead	6.1	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Magnesium	5450	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Manganese	200	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Mercury	0.004	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Nickel	10.7	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Potassium	959	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Selenium	3.3	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Silver	0.94	FALSE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Sodium	114	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Vanadium	16.7	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM607X3	MJ4G18	2005-04-30	Unk	Sediment	Zinc	59.5	TRUE	mg/kg	96.51351189	2.786390095	803.4400024	364774	5309940	OU 2 Lower Laucustrine CSM Unit	3.8745	0.233	0.2876	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Aluminum	9510	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Arsenic	9.6	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Barium	77.2	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Beryllium	0.84	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Cadmium	0.48	FALSE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Calcium	12800	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Chromium	12.2	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Cobalt	6.9	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Copper	12.2	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Iron	18000	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Lead	9.3	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Magnesium	7580	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Manganese	410	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Mercury	0.004	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Nickel	10.7	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Potassium	1900	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Selenium	2.6	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Sodium	156	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Vanadium	19.3	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X1	MJ4G19	2005-04-30	Unk	Sediment	Zinc	44.5	TRUE	mg/kg	84.01625926	15.68152398	-511.5700073	368164	5307135	OU 2 Lower Laucustrine CSM Unit	3.1426	-0.0119	-1.1636	3
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Aluminum	10100	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Arsenic	8.8	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Barium	119	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Beryllium	0.96	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Cadmium	3.5	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Calcium	5060	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Chromium	15.3	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Cobalt	7.6	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Copper	26.8	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Iron	16300	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Lead	98.8	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Magnesium	4580	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Manganese	474	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Mercury	0.21	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Nickel	13.8	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Potassium	1750	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Selenium	1.3	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Sodium	306	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Thallium	4.2	FALSE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Vanadium	25	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X2	MJ4G20	2005-04-30	Unk	Sediment	Zinc	327	TRUE	mg/kg	52.99225334	47.00774666	53.7299995	368524	5307573	OU 2 Lower Laucustrine CSM Unit	-0.7325	-1.9659	1.2842	2
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Aluminum	7470	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Arsenic	11.7	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Barium	46.2	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Beryllium	0.54	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Cadmium	0.46	FALSE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Calcium	12800	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Chromium	9.5	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Cobalt	4.1	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Copper	9.1	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Iron	14100	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Lead	6	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Magnesium	7600	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Manganese	284	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Mercury	0.1	FALSE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Nickel	8.9	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Potassium	1510	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Selenium	2.2	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Sodium	98.1	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Thallium	2.3	FALSE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Vanadium	12.9	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM610X3	MJ4G21	2005-04-30	Unk	Sediment	Zinc	33.9	TRUE	mg/kg	94.25278156	5.54710638	593.2800293	368774	5308083	OU 2 Lower Laucustrine CSM Unit	2.2613	-1.7606	-1.679	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Aluminum	7220	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Antimony	6	FALSE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Arsenic	6.6	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Barium	54.1	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Beryllium	0.58	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Cadmium	0.08	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Calcium	5680	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Chromium	9.4	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Cobalt	4.6	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Copper	11.8	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Iron	13700	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Lead	9	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Magnesium	5530	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Manganese	251	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Mercury	0.036	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Nickel	8.5	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Potassium	1620	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Selenium	2.4	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Silver	1	FALSE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Sodium	77.8	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Thallium	2.5	FALSE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Vanadium	12.8	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G22	2005-05-02	Unk	Sediment	Zinc	38.4	TRUE	mg/kg	76.90273228	22.89382133	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8631	-0.5867	-0.7317	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Aluminum	8230	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Antimony	6.3	FALSE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Arsenic	6	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Barium	55.5	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Beryllium	0.64	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Cadmium	0.52	FALSE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Calcium	4490	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Chromium	10.1	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Cobalt	5.1	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Copper	10.3	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Iron	15400	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Lead	6.7	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Magnesium	6040	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Manganese	281	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Mercury	0.01	FALSE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Nickel	8.8	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Potassium	1730	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Selenium	2.7	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Silver	1	FALSE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Sodium	66	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Vanadium	14.5	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G23	2005-05-02	Unk	Sediment	Zinc	37.5	TRUE	mg/kg	85.51641072	14.48358928	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.9621	-0.8807	-0.2215	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Aluminum	7660	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Antimony	5.1	FALSE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Arsenic	6	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Barium	52.3	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Beryllium	0.57	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Cadmium	0.053	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Calcium	3850	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Chromium	10	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Cobalt	5.1	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Copper	9.2	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Iron	14200	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Lead	6.5	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Magnesium	5770	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Manganese	283	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Mercury	0.01	FALSE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Nickel	8.7	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Potassium	1570	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Selenium	2.3	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Silver	0.86	FALSE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Thallium	2.1	FALSE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Vanadium	14	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G24	2005-05-02	Unk	Sediment	Zinc	35.3	TRUE	mg/kg	81.64002166	9.534030048	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	3.8592	0.0469	-0.4999	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Aluminum	8160	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Antimony	6.3	FALSE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Arsenic	7.4	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Barium	60.7	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Beryllium	0.67	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Cadmium	0.051	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Calcium	2500	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Chromium	10.2	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Cobalt	4.9	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Copper	9.9	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Iron	15300	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Lead	7.1	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Magnesium	5800	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Manganese	276	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Mercury	0.007	FALSE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Nickel	8.6	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Potassium	1810	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Selenium	3	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Silver	1.1	FALSE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Sodium	71.4	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Vanadium	15.3	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G25	2005-05-02	Unk	Sediment	Zinc	39.8	TRUE	mg/kg	84.93890624	11.04506983	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.0004	0.1635	-0.2266	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Aluminum	7290	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Antimony	5.7	FALSE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Arsenic	5.8	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Barium	57.6	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Beryllium	0.59	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Cadmium	0.05	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Calcium	2060	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Chromium	9.8	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Cobalt	4.8	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Copper	9.2	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Iron	13900	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Lead	6.6	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Magnesium	5020	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Manganese	270	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Mercury	0.004	FALSE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Nickel	8.8	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Potassium	1760	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Selenium	2.3	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Silver	0.95	FALSE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Sodium	62.2	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Vanadium	13.7	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G26	2005-05-02	Unk	Sediment	Zinc	35.5	TRUE	mg/kg	79.4290783	19.15974518	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	4.1475	0.3815	-0.0077	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Aluminum	6390	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Antimony	6.1	FALSE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Arsenic	6.3	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Barium	39.4	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Beryllium	0.49	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Cadmium	0.51	FALSE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Calcium	10100	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Chromium	9	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Cobalt	4.1	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Copper	9.3	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Iron	13400	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Lead	5.2	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Magnesium	5440	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Manganese	230	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Mercury	0.008	FALSE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Nickel	8.3	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Potassium	1150	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Selenium	2.5	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Silver	1	FALSE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Sodium	68.8	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Vanadium	12.6	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM622C1	MJ4G27	2005-05-02	Unk	Sediment	Zinc	30	TRUE	mg/kg	76.45352351	17.50271969	-441.6300049	384343	5308437	OU 2 Lower Laucustrine CSM Unit	2.8026	-0.8752	-1.1882	3
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Aluminum	19200	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Antimony	19.1	FALSE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Arsenic	10.4	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Barium	215	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Beryllium	1.7	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Cadmium	6.7	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Calcium	5280	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Chromium	35.3	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Cobalt	12.7	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Copper	60.4	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Iron	28300	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Lead	178	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Magnesium	7760	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Manganese	935	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Mercury	0.03	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Nickel	26.3	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Potassium	2960	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Selenium	3.4	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Silver	3.2	FALSE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Sodium	286	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Thallium	8	FALSE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Vanadium	38.7	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM616T2	MJ4G29	2005-05-02	Unk	Sediment	Zinc	646	TRUE	mg/kg	29.15451895	70.84548105	320.1099854	374119	5311652	OU 2 Lower Laucustrine CSM Unit	-0.1289	-1.1644	1.9312	2
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Aluminum	6500	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Antimony	5.8	FALSE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Arsenic	1.8	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Barium	46.6	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Beryllium	0.56	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Cadmium	0.46	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Calcium	1930	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Chromium	9.3	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Cobalt	4.5	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Copper	7.6	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Iron	11700	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Lead	8.4	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Magnesium	3960	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Manganese	102	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Mercury	0.011	FALSE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Nickel	7.4	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Potassium	1140	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Selenium	1.8	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Silver	0.97	FALSE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Sodium	71.5	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Thallium	2.4	FALSE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Vanadium	13.1	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X3	MJ4G30	2005-05-02	Unk	Sediment	Zinc	104	TRUE	mg/kg	72.88924884	23.46628872	449.5700073	371672	5308267	OU 2 Lower Laucustrine CSM Unit	2.1782	-1.2407	1.2597	3
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Aluminum	16300	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Antimony	11.1	FALSE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Arsenic	10.3	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Barium	217	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Beryllium	1.5	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Cadmium	3.4	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Calcium	8510	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Chromium	27	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Cobalt	13.2	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Copper	49.5	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Iron	28700	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Lead	108	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Magnesium	8790	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Manganese	968	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Mercury	0.27	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Nickel	22.9	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Potassium	2910	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Selenium	4.2	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Silver	1.8	FALSE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Sodium	199	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Thallium	4.6	FALSE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Vanadium	36.9	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM613X2	MJ4G31	2005-05-02	Unk	Sediment	Zinc	406	TRUE	mg/kg	46.89623924	53.10376076	1.11	372137	5308247	OU 2 Lower Laucustrine CSM Unit	-0.2648	-1.6577	1.137	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Aluminum	24200	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Antimony	12.9	FALSE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Arsenic	20.7	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Barium	336	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Beryllium	2.1	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Cadmium	16.2	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Calcium	8800	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Chromium	31.9	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Cobalt	16.7	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Copper	64.6	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Iron	34400	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Lead	583	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Magnesium	9890	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Manganese	1080	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Mercury	1	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Nickel	28.4	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Potassium	3730	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Selenium	5.2	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Silver	2.2	FALSE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Sodium	270	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Thallium	5.4	FALSE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Vanadium	47.8	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM628X2	MJ4G32	2005-05-02	Unk	Sediment	Zinc	1250	TRUE	mg/kg	6.112469438	93.88753056	-52	390082	5304078	OU 2 Middle Laucustrine CSM Unit	-2.1023	-2.9406	1.6081	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Aluminum	21600	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Antimony	15.1	FALSE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Arsenic	15.5	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Barium	325	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Beryllium	1.9	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Cadmium	11.3	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Calcium	8400	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Chromium	35.4	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Cobalt	15.9	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Copper	60.8	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Iron	34000	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Lead	462	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Magnesium	10500	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Manganese	953	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Mercury	1	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Nickel	30.5	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Potassium	3650	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Selenium	4.7	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Silver	2.5	FALSE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Sodium	534	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Thallium	6.3	FALSE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Vanadium	46	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G33	2005-05-03	Unk	Sediment	Zinc	1210	TRUE	mg/kg	1.834301437	98.16569856	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	-1.8457	-2.536	1.7061	2
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Aluminum	11300	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Antimony	6.3	FALSE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Arsenic	4.6	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Barium	98.8	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Beryllium	0.98	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Cadmium	0.11	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Calcium	2680	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Chromium	16.6	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Cobalt	8.1	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Copper	15.4	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Iron	17300	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Lead	8.9	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Magnesium	5350	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Manganese	344	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Mercury	0.009	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Nickel	14.4	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Potassium	3060	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Selenium	2.6	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Sodium	319	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Thallium	2.6	FALSE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Vanadium	28.6	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2005 Phase 1 Sediment Sampling	RM605C1	MJ4G37	2005-05-03	Unk	Sediment	Zinc	48.3	TRUE	mg/kg	33.685727	59.95847546	-502.4299927	362581	5311928	OU 2 Lower Laucustrine CSM Unit	4.045	0.5277	0.961	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Aluminum	6020	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Antimony	0.055	FALSE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6020	Sediment	Arsenic	1.56	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Barium	55.2	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6020	Sediment	Cadmium	0.136	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Calcium	4370	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6020	Sediment	Chromium	7.91	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Cobalt	3.8	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Copper	9.4	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Iron	11600	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6020	Sediment	Lead	4.37	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Magnesium	3750	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Manganese	215	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Nickel	9.15	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Potassium	747	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Silver	0.059	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Sodium	280	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Thallium	0.067	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6020	Sediment	Vanadium	17.4	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA1	2011-04-25	EPA6010B	Sediment	Zinc	33.7	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	3.0745	0.9271	-0.2534	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Aluminum	5160	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Antimony	0.094	FALSE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6020	Sediment	Arsenic	1.62	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Barium	40.2	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6020	Sediment	Cadmium	0.186	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Calcium	3290	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6020	Sediment	Chromium	7.75	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Cobalt	4.14	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Copper	9.3	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Iron	12800	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6020	Sediment	Lead	6.56	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Magnesium	3500	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Manganese	193	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Nickel	9.22	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Potassium	623	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Silver	0.055	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Sodium	122	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Thallium	0.065	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6020	Sediment	Vanadium	15	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA2	2011-04-25	EPA6010B	Sediment	Zinc	38.7	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.6002	0.2834	0.1246	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Aluminum	5790	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Antimony	0.085	FALSE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6020	Sediment	Arsenic	1.62	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Barium	46.2	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6020	Sediment	Cadmium	0.169	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Calcium	2770	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6020	Sediment	Chromium	8.15	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Cobalt	4.31	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Copper	11.8	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Iron	12200	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6020	Sediment	Lead	5.67	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Magnesium	3700	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Manganese	199	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Nickel	10.4	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Potassium	713	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Silver	0.045	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Sodium	116	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Thallium	0.049	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6020	Sediment	Vanadium	15.2	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAA	CR-AAA3	2011-04-25	EPA6010B	Sediment	Zinc	40.2	TRUE	mg/kg	65.33340118	7.641680661	356.0700073	414877	5345725	OU 2 Upper Laucustrine CSM Unit	2.7647	0.2806	0.3204	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Aluminum	4910	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Antimony	0.045	FALSE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6020	Sediment	Arsenic	1.61	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Barium	50.8	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6020	Sediment	Cadmium	0.106	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Calcium	2730	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6020	Sediment	Chromium	7.59	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Cobalt	3.61	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Copper	8.9	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Iron	10300	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6020	Sediment	Lead	3.71	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Magnesium	3120	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Manganese	177	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Nickel	8.83	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Potassium	705	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Silver	0.047	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Sodium	107	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Thallium	0.056	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6020	Sediment	Vanadium	12.8	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB1	2011-04-25	EPA6010B	Sediment	Zinc	30.9	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.2973	0.9478	-0.1691	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Aluminum	4350	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Antimony	0.044	FALSE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6020	Sediment	Arsenic	1.65	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Barium	37	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Beryllium	0.14	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6020	Sediment	Cadmium	0.101	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Calcium	2530	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6020	Sediment	Chromium	7.76	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Cobalt	3.19	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Copper	7.6	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Iron	9570	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6020	Sediment	Lead	3.31	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Magnesium	2900	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Manganese	171	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Nickel	8.55	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Potassium	577	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Sodium	130	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Thallium	0.052	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6020	Sediment	Vanadium	14.1	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB2	2011-04-25	EPA6010B	Sediment	Zinc	25.6	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	3.5417	0.8871	-0.0649	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Aluminum	4730	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Antimony	0.037	FALSE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6020	Sediment	Arsenic	1.63	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Barium	48.6	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6020	Sediment	Cadmium	0.111	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Calcium	2670	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6020	Sediment	Chromium	8.72	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Cobalt	3.56	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Copper	9.2	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Iron	10400	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6020	Sediment	Lead	3.98	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Magnesium	3100	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Manganese	158	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Nickel	9.07	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Potassium	681	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Silver	0.052	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Sodium	90	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Thallium	0.06	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6020	Sediment	Vanadium	14.4	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAB	CR-AAB3	2011-04-25	EPA6010B	Sediment	Zinc	31.8	TRUE	mg/kg	65.33340118	7.641680661	361.2600098	414877	5345775	OU 2 Upper Laucustrine CSM Unit	2.9437	0.2797	0.0107	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Aluminum	7080	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Antimony	0.067	FALSE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6020	Sediment	Arsenic	1.96	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Barium	75.7	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6020	Sediment	Cadmium	0.282	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Calcium	3040	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6020	Sediment	Chromium	12.1	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Cobalt	5	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Copper	12.3	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Iron	14000	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6020	Sediment	Lead	8.63	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Magnesium	3860	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Manganese	157	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Potassium	1160	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Silver	0.068	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Sodium	127	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Thallium	0.181	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6020	Sediment	Vanadium	17.5	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC1	2011-04-25	EPA6010B	Sediment	Zinc	56	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	2.4114	-0.1679	0.4404	3
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Aluminum	6600	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Antimony	0.103	FALSE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6020	Sediment	Arsenic	2.11	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Barium	72.4	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6020	Sediment	Cadmium	0.884	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Calcium	2780	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6020	Sediment	Chromium	10.7	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Cobalt	4.4	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Copper	12.4	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Iron	13000	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6020	Sediment	Lead	33.3	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Magnesium	3560	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Manganese	128	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA7471A	Sediment	Mercury	0.079	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Nickel	11.8	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Potassium	1060	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Silver	0.103	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Sodium	108	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Thallium	0.266	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6020	Sediment	Vanadium	16	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC2	2011-04-25	EPA6010B	Sediment	Zinc	119	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.3458	-1.8145	0.981	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Aluminum	6360	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Antimony	0.108	FALSE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6020	Sediment	Arsenic	2.07	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Barium	68.5	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6020	Sediment	Cadmium	0.883	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Calcium	2190	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6020	Sediment	Chromium	8.91	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Cobalt	3.67	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Copper	10.2	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Iron	11200	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6020	Sediment	Lead	38.3	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Magnesium	2950	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Manganese	117	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA7471A	Sediment	Mercury	0.055	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Nickel	8.91	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Potassium	949	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Silver	0.063	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Sodium	85	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Thallium	0.208	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6020	Sediment	Vanadium	14.3	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAC	CR-AAC3	2011-04-25	EPA6010B	Sediment	Zinc	104	TRUE	mg/kg	65.33340118	7.641680661	374.4200134	414867	5345810	OU 2 Upper Laucustrine CSM Unit	0.2219	-1.8739	1.0455	2
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Aluminum	6090	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Antimony	0.111	FALSE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6020	Sediment	Arsenic	1.74	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Barium	69.9	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6020	Sediment	Cadmium	0.169	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Calcium	4290	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6020	Sediment	Chromium	10.5	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Cobalt	4.93	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Copper	11.1	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Iron	13900	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6020	Sediment	Lead	5.48	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Magnesium	3930	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Manganese	201	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Potassium	1070	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Silver	0.063	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Sodium	119	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Thallium	0.105	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6020	Sediment	Vanadium	16	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD1	2011-04-25	EPA6010B	Sediment	Zinc	43.7	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	2.948	0.584	-0.1439	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Aluminum	5060	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Antimony	0.06	FALSE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6020	Sediment	Arsenic	1.22	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Barium	52.7	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6020	Sediment	Cadmium	0.104	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Calcium	6330	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6020	Sediment	Chromium	7.9	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Cobalt	4	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Copper	11.5	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Iron	11100	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6020	Sediment	Lead	3.6	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Magnesium	3990	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Manganese	238	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Nickel	9.84	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Potassium	772	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Silver	0.059	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Sodium	120	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Thallium	0.06	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6020	Sediment	Vanadium	13.7	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD2	2011-04-25	EPA6010B	Sediment	Zinc	32	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.218	1.1629	-0.6216	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Aluminum	5410	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Antimony	0.058	FALSE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6020	Sediment	Arsenic	1.41	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Barium	46.3	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Beryllium	0.14	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6020	Sediment	Cadmium	0.102	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Calcium	6130	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6020	Sediment	Chromium	6.92	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Cobalt	4.19	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Copper	11	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Iron	10500	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6020	Sediment	Lead	3.98	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Magnesium	4300	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Manganese	280	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Nickel	12.7	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Potassium	743	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Silver	0.068	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Sodium	154	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Thallium	0.042	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6020	Sediment	Vanadium	14.4	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAD	CR-AAD3	2011-04-25	EPA6010B	Sediment	Zinc	31.1	TRUE	mg/kg	65.33340118	7.641680661	471.0299988	414737	5345665	OU 2 Upper Laucustrine CSM Unit	3.3365	1.1163	-0.7411	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Aluminum	5710	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Antimony	0.064	FALSE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6020	Sediment	Arsenic	1.69	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Barium	58	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6020	Sediment	Cadmium	0.142	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Calcium	3560	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6020	Sediment	Chromium	10.6	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Cobalt	4.75	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Copper	11.2	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Iron	12400	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6020	Sediment	Lead	4.7	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Magnesium	4130	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Manganese	244	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Nickel	11.6	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Potassium	787	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Silver	0.066	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Sodium	109	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Thallium	0.08	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6020	Sediment	Vanadium	17.4	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE1	2011-04-25	EPA6010B	Sediment	Zinc	36.4	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.2959	0.8292	-0.0527	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Aluminum	5270	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Antimony	0.024	FALSE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6020	Sediment	Arsenic	2.21	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Barium	44.7	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Beryllium	0.12	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6020	Sediment	Cadmium	0.112	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Calcium	4880	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6020	Sediment	Chromium	8.08	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Cobalt	5.19	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Copper	9.9	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Iron	10500	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6020	Sediment	Lead	4.02	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Magnesium	4290	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Manganese	256	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Nickel	8.87	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Potassium	664	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Silver	0.054	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Sodium	112	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Thallium	0.056	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6020	Sediment	Vanadium	16.4	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE2	2011-04-25	EPA6010B	Sediment	Zinc	28.1	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.5339	1.0963	-0.7903	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Aluminum	3890	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Antimony	0.009	FALSE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6020	Sediment	Arsenic	1.1	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Barium	39	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Beryllium	0.1	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6020	Sediment	Cadmium	0.099	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Calcium	4340	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6020	Sediment	Chromium	5.98	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Cobalt	2.95	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Copper	7.2	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Iron	7620	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6020	Sediment	Lead	3.07	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Magnesium	2920	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Manganese	220	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Nickel	7.04	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Potassium	610	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Silver	0.036	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Sodium	101	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Thallium	0.045	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6020	Sediment	Vanadium	12.7	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-AAE	CR-AAE3	2011-04-25	EPA6010B	Sediment	Zinc	23.4	TRUE	mg/kg	65.33340118	7.641680661	551.4500122	414652	5345680	OU 2 Upper Laucustrine CSM Unit	3.1643	0.99	-0.6494	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Aluminum	11800	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Antimony	0.582	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6020	Sediment	Arsenic	15.4	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Barium	149	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Beryllium	0.47	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6020	Sediment	Cadmium	0.615	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Calcium	3530	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6020	Sediment	Chromium	25.8	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Cobalt	11.5	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Copper	33.7	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Iron	25700	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6020	Sediment	Lead	64	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Magnesium	6140	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Manganese	430	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA7471A	Sediment	Mercury	0.013	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Nickel	32.1	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Potassium	2520	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Silver	0.102	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Sodium	196	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Thallium	0.144	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6020	Sediment	Vanadium	33	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA1	2011-04-29	EPA6010B	Sediment	Zinc	107	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.1124	-0.2792	0.5081	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Aluminum	15400	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Antimony	0.87	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6020	Sediment	Arsenic	13.6	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Barium	204	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Beryllium	0.66	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6020	Sediment	Cadmium	0.553	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Calcium	3760	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6020	Sediment	Chromium	29.7	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Cobalt	16.2	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Copper	51.8	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Iron	36200	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6020	Sediment	Lead	25.8	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Magnesium	7650	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Manganese	757	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA7471A	Sediment	Mercury	0.016	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Nickel	46.9	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Potassium	3330	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Silver	0.137	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Sodium	138	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Thallium	0.15	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6020	Sediment	Vanadium	38.4	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA2	2011-04-29	EPA6010B	Sediment	Zinc	125	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7555	0.1989	0.6865	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Aluminum	19000	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Antimony	0.787	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6020	Sediment	Arsenic	14.3	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Barium	275	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Beryllium	0.75	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6020	Sediment	Cadmium	0.58	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Calcium	4800	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6020	Sediment	Chromium	35.8	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Cobalt	18.1	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Copper	64.2	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Iron	37500	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6020	Sediment	Lead	15.5	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Magnesium	10100	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Manganese	640	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA7471A	Sediment	Mercury	0.036	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Nickel	60.4	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Potassium	3590	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Silver	0.247	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Sodium	230	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Thallium	0.148	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6020	Sediment	Vanadium	42.3	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBA	CR-BBA3	2011-04-29	EPA6010B	Sediment	Zinc	136	TRUE	mg/kg	53.86712439	27.85070005	-717.5	415060	5373995	OU 2 Upper Laucustrine CSM Unit	2.7897	-0.0122	0.3861	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Aluminum	5630	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Antimony	0.121	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6020	Sediment	Arsenic	3.02	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Barium	74.1	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6020	Sediment	Cadmium	0.414	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Calcium	3240	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6020	Sediment	Chromium	11.9	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Cobalt	4.69	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Copper	10.9	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Iron	11300	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6020	Sediment	Lead	18.9	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Magnesium	3750	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Manganese	169	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA7471A	Sediment	Mercury	0.017	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Nickel	13.2	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Potassium	1020	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Silver	0.05	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Sodium	181	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Thallium	0.251	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6020	Sediment	Vanadium	15.6	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB1	2011-04-29	EPA6010B	Sediment	Zinc	85.4	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	1.4754	-0.566	0.2536	3
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Aluminum	4950	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Antimony	0.175	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6020	Sediment	Arsenic	2.85	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Barium	60.7	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6020	Sediment	Cadmium	0.526	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Calcium	2910	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6020	Sediment	Chromium	8.93	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Cobalt	4.21	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Copper	12.3	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Iron	10700	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6020	Sediment	Lead	27.4	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Magnesium	3250	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Manganese	137	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA7471A	Sediment	Mercury	0.026	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Nickel	11.1	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Potassium	822	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Silver	0.041	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Sodium	171	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Thallium	0.23	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6020	Sediment	Vanadium	14.5	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB2	2011-04-29	EPA6010B	Sediment	Zinc	116	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.6762	-0.9928	0.4781	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Aluminum	7770	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Antimony	0.304	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6020	Sediment	Arsenic	5.82	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Barium	95.5	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6020	Sediment	Cadmium	0.847	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Calcium	3110	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6020	Sediment	Chromium	15	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Cobalt	7.11	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Copper	20.1	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Iron	16500	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6020	Sediment	Lead	49.7	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Magnesium	4540	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Manganese	257	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA7471A	Sediment	Mercury	0.035	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Nickel	20.6	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Potassium	1430	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Silver	0.062	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Sodium	174	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Thallium	0.205	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6020	Sediment	Vanadium	21.4	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBB	CR-BBB3	2011-04-29	EPA6010B	Sediment	Zinc	157	TRUE	mg/kg	53.86712439	27.85070005	-617.210022	415090	5374095	OU 2 Upper Laucustrine CSM Unit	0.8859	-1.0878	0.822	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Aluminum	6660	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Antimony	0.231	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6020	Sediment	Arsenic	2.8	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Barium	81	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6020	Sediment	Cadmium	0.737	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Calcium	3220	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6020	Sediment	Chromium	11.4	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Cobalt	5.36	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Copper	16.3	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Iron	13100	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6020	Sediment	Lead	41.2	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Magnesium	4040	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Manganese	192	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA7471A	Sediment	Mercury	0.063	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Nickel	14.5	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Potassium	1160	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Sodium	200	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Thallium	0.253	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6020	Sediment	Vanadium	15.9	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC1	2011-04-29	EPA6010B	Sediment	Zinc	153	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	0.3506	-1.2455	0.8981	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Aluminum	8060	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Antimony	0.363	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6020	Sediment	Arsenic	7.19	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Barium	130	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6020	Sediment	Cadmium	1.88	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Calcium	4080	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6020	Sediment	Chromium	15.6	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Cobalt	6.67	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Copper	24	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Iron	15800	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6020	Sediment	Lead	102	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Magnesium	4640	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Manganese	179	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA7471A	Sediment	Mercury	0.179	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Nickel	19.4	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Potassium	1560	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Silver	0.124	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Sodium	183	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Thallium	0.291	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6020	Sediment	Vanadium	19.7	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC2	2011-04-29	EPA6010B	Sediment	Zinc	279	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	-0.7298	-2.199	0.599	2
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Aluminum	14700	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Antimony	0.71	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6020	Sediment	Arsenic	8.77	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Barium	207	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Beryllium	0.62	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6020	Sediment	Cadmium	0.601	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Calcium	4310	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6020	Sediment	Chromium	29.9	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Cobalt	14.2	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Copper	46.3	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Iron	31900	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6020	Sediment	Lead	22.3	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Magnesium	7300	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Manganese	609	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA7471A	Sediment	Mercury	0.035	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Nickel	43.5	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Potassium	3270	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Silver	0.151	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Sodium	185	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Thallium	0.137	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6020	Sediment	Vanadium	40.4	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBC	CR-BBC3	2011-04-29	EPA6010B	Sediment	Zinc	126	TRUE	mg/kg	53.86712439	27.85070005	-587.1500244	415080	5374125	OU 2 Upper Laucustrine CSM Unit	2.4257	-0.1353	0.7904	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Aluminum	5450	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Antimony	0.204	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6020	Sediment	Arsenic	4.67	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Barium	75	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6020	Sediment	Cadmium	0.61	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Calcium	2480	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6020	Sediment	Chromium	9.85	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Cobalt	4.71	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Copper	10.8	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Iron	12500	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6020	Sediment	Lead	47	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Magnesium	3310	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Manganese	153	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA7471A	Sediment	Mercury	0.029	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Nickel	12.9	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Potassium	928	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Silver	0.049	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Sodium	158	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Thallium	0.241	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6020	Sediment	Vanadium	15.7	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD1	2011-04-29	EPA6010B	Sediment	Zinc	131	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	0.5737	-1.1539	0.4984	2
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Aluminum	13800	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Antimony	0.695	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6020	Sediment	Arsenic	24.1	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Barium	188	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Beryllium	0.65	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Calcium	4110	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6020	Sediment	Chromium	23.9	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Cobalt	14.6	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Copper	42.1	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Iron	31100	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6020	Sediment	Lead	102	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Magnesium	6200	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Manganese	713	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA7471A	Sediment	Mercury	0.015	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Nickel	37.4	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Potassium	3040	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Silver	0.122	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Sodium	164	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Thallium	0.174	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6020	Sediment	Vanadium	34.7	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD2	2011-04-29	EPA6010B	Sediment	Zinc	151	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	1.6469	-0.3326	0.5385	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Aluminum	17200	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Antimony	0.766	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6020	Sediment	Arsenic	12.1	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Barium	183	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Beryllium	0.75	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6020	Sediment	Cadmium	0.745	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Calcium	3900	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6020	Sediment	Chromium	28.5	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Cobalt	17.5	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Copper	55.2	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Iron	34200	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6020	Sediment	Lead	18.3	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Magnesium	7860	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Manganese	720	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA7471A	Sediment	Mercury	0.019	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Nickel	49.3	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Potassium	3330	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Silver	0.269	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Sodium	150	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Thallium	0.169	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6020	Sediment	Vanadium	42.6	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBD	CR-BBD3	2011-04-29	EPA6010B	Sediment	Zinc	151	TRUE	mg/kg	53.86712439	27.85070005	-491.0899963	415160	5374225	OU 2 Upper Laucustrine CSM Unit	2.799	-0.0678	0.8833	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Aluminum	9500	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Antimony	0.347	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6020	Sediment	Arsenic	6.12	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Barium	193	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6020	Sediment	Cadmium	1.88	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Calcium	4660	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6020	Sediment	Chromium	14.8	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Cobalt	5.81	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Copper	25.2	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Iron	15400	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6020	Sediment	Lead	132	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Magnesium	4880	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Manganese	228	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA7471A	Sediment	Mercury	0.172	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Nickel	15.3	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Potassium	1630	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Silver	0.189	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Sodium	177	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Thallium	0.282	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6020	Sediment	Vanadium	18.9	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE1	2011-04-29	EPA6010B	Sediment	Zinc	225	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	-1.0728	-2.0281	0.4228	2
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Aluminum	11800	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Antimony	0.119	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6020	Sediment	Arsenic	3.47	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Barium	125	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6020	Sediment	Cadmium	0.25	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Calcium	3080	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6020	Sediment	Chromium	13.9	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Cobalt	6.48	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Copper	17.9	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Iron	15400	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6020	Sediment	Lead	11.4	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Magnesium	4170	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Manganese	257	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Nickel	15.2	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Potassium	2070	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Silver	0.049	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Sodium	218	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Thallium	0.13	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6020	Sediment	Vanadium	19.7	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE2	2011-04-29	EPA6010B	Sediment	Zinc	54.9	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	2.7561	0.2581	0.5047	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Aluminum	10500	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Antimony	0.121	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6020	Sediment	Arsenic	2.15	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Barium	116	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6020	Sediment	Cadmium	0.153	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Calcium	3590	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6020	Sediment	Chromium	14.1	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Cobalt	6.38	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Copper	18	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Iron	15100	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6020	Sediment	Lead	7.54	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Magnesium	4330	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Manganese	220	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Nickel	15.5	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Potassium	1880	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Silver	0.08	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Sodium	282	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Thallium	0.117	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6020	Sediment	Vanadium	20.5	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BBE	CR-BBE3	2011-04-29	EPA6010B	Sediment	Zinc	47	TRUE	mg/kg	53.86712439	27.85070005	-409.1099854	415280	5374335	OU 2 Upper Laucustrine CSM Unit	3.2465	0.8002	0.4327	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Aluminum	10500	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Antimony	0.114	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6020	Sediment	Arsenic	1.73	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Barium	54.9	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6020	Sediment	Cadmium	0.237	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Calcium	1630	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6020	Sediment	Chromium	6.36	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Cobalt	2.9	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Copper	16.6	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Iron	9880	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6020	Sediment	Lead	6.52	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Magnesium	2360	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Manganese	153	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Nickel	6.11	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Potassium	687	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Silver	0.049	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Sodium	63	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Thallium	0.072	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6020	Sediment	Vanadium	12.3	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA1	2010-04-28	EPA6010B	Sediment	Zinc	40.7	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.1496	-0.2622	0.8414	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Aluminum	9260	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Antimony	0.281	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6020	Sediment	Arsenic	2.26	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Barium	93.3	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Beryllium	0.41	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6020	Sediment	Cadmium	0.317	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Calcium	1760	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6020	Sediment	Chromium	7.79	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Cobalt	4.4	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Copper	11.3	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Iron	13500	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6020	Sediment	Lead	7.63	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Magnesium	3430	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Manganese	355	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Nickel	9.86	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Potassium	869	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Silver	0.041	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Sodium	71	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Thallium	0.092	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6020	Sediment	Vanadium	13.2	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA2	2010-04-28	EPA6010B	Sediment	Zinc	54.1	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	2.4432	0.33	0.7998	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Aluminum	7700	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Antimony	0.169	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Barium	57.1	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6020	Sediment	Cadmium	0.1	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Calcium	2070	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6020	Sediment	Chromium	9.01	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Cobalt	4.1	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Copper	14	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Iron	12900	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6020	Sediment	Lead	4.19	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Magnesium	3930	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Manganese	199	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Nickel	11.9	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Potassium	858	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Silver	0.04	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Sodium	99	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Thallium	0.056	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6020	Sediment	Vanadium	19.2	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCA	CR-BCA3	2010-04-28	EPA6010B	Sediment	Zinc	32.6	TRUE	mg/kg	87.85030932	7.024779419	386.980011	410294	5366499	OU 2 Upper Laucustrine CSM Unit	3.6875	0.4487	0.4467	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Aluminum	7410	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Antimony	0.052	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6020	Sediment	Arsenic	1.17	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Barium	73.6	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6020	Sediment	Cadmium	0.193	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Calcium	1670	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6020	Sediment	Chromium	6.08	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Cobalt	3.1	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Copper	8.9	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Iron	9670	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6020	Sediment	Lead	6.47	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Magnesium	2550	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Manganese	161	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Nickel	6.61	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Potassium	817	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Silver	0.03	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Sodium	108	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Thallium	0.095	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6020	Sediment	Vanadium	12.2	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB1	2010-04-28	EPA6010B	Sediment	Zinc	36.5	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	2.3499	0.144	0.8289	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Aluminum	7420	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Antimony	0.035	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6020	Sediment	Arsenic	1.1	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Barium	51.2	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Beryllium	0.43	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6020	Sediment	Cadmium	0.064	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Calcium	2850	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6020	Sediment	Chromium	5.99	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Cobalt	3	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Copper	8.3	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Iron	9090	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6020	Sediment	Lead	3.12	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Magnesium	2710	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Manganese	171	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Nickel	6.74	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Potassium	719	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Silver	0.032	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Sodium	164	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Thallium	0.047	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6020	Sediment	Vanadium	13.4	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB2	2010-04-28	EPA6010B	Sediment	Zinc	21.8	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6823	0.9339	0.3301	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Aluminum	6220	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Antimony	0.081	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6020	Sediment	Arsenic	1.68	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Barium	45.6	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6020	Sediment	Cadmium	0.077	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Calcium	2170	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6020	Sediment	Chromium	6.14	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Cobalt	3.4	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Copper	12.3	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Iron	10500	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6020	Sediment	Lead	3.98	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Magnesium	3690	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Manganese	201	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Nickel	9.81	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Potassium	1020	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Silver	0.076	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Sodium	214	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Thallium	0.035	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6020	Sediment	Vanadium	13.1	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCB	CR-BCB3	2010-04-28	EPA6010B	Sediment	Zinc	26.7	TRUE	mg/kg	87.85030932	7.024779419	713.6099854	410084	5366229	OU 2 Upper Laucustrine CSM Unit	3.6711	0.9313	0.275	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Aluminum	5760	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Antimony	0.071	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6020	Sediment	Arsenic	1.4	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Barium	55.2	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6020	Sediment	Cadmium	0.703	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Calcium	1790	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6020	Sediment	Chromium	6.03	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Cobalt	2.9	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Copper	7.4	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Iron	10000	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6020	Sediment	Lead	15.2	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Magnesium	2640	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Manganese	160	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Nickel	6.23	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Potassium	759	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Silver	0.03	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Sodium	81	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Thallium	0.235	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6020	Sediment	Vanadium	11.4	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC1	2010-04-28	EPA6010B	Sediment	Zinc	79.4	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.0541	-0.8744	1.0638	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Aluminum	10000	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Antimony	0.086	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6020	Sediment	Arsenic	1.36	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Barium	101	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Beryllium	0.4	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6020	Sediment	Cadmium	0.413	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Calcium	1830	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6020	Sediment	Chromium	7.53	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Cobalt	3.5	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Copper	9	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Iron	11200	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6020	Sediment	Lead	8.5	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Magnesium	2560	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Manganese	261	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Nickel	5.99	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Potassium	1030	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Silver	0.027	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Sodium	93	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Thallium	0.117	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6020	Sediment	Vanadium	12	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC2	2010-04-28	EPA6010B	Sediment	Zinc	55.4	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	1.8661	0.0701	1.1273	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Aluminum	10400	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Antimony	0.043	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6020	Sediment	Arsenic	1.21	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Barium	102	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6020	Sediment	Cadmium	0.076	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Calcium	1650	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6020	Sediment	Chromium	7.24	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Cobalt	3.2	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Copper	9.6	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Iron	10300	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6020	Sediment	Lead	4.1	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Magnesium	2350	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Manganese	213	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Nickel	5.88	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Potassium	1090	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Silver	0.048	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Sodium	99	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Thallium	0.084	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6020	Sediment	Vanadium	11.7	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCC	CR-BCC3	2010-04-28	EPA6010B	Sediment	Zinc	25.5	TRUE	mg/kg	87.85030932	7.024779419	639.2299805	410124	5366299	OU 2 Upper Laucustrine CSM Unit	3.2827	1.0476	0.7268	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Aluminum	4210	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Antimony	0.052	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6020	Sediment	Arsenic	1.37	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Barium	42.5	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6020	Sediment	Cadmium	0.297	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Calcium	2800	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6020	Sediment	Chromium	6.49	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Cobalt	3.2	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Copper	5.9	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Iron	8730	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6020	Sediment	Lead	17.4	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Magnesium	2180	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Manganese	126	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Nickel	6.86	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Potassium	631	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Silver	0.029	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Sodium	81	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Thallium	0.134	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6020	Sediment	Vanadium	8.68	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD1	2010-04-28	EPA6010B	Sediment	Zinc	65.9	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.3689	-0.3716	0.5612	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Aluminum	7290	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Antimony	0.134	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6020	Sediment	Arsenic	2.13	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Barium	73	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6020	Sediment	Cadmium	0.473	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Calcium	2750	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6020	Sediment	Chromium	10.8	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Cobalt	4.5	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Copper	12.4	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Iron	11900	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6020	Sediment	Lead	22.1	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Magnesium	3180	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Manganese	171	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA7471A	Sediment	Mercury	0.018	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Nickel	9.85	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Potassium	1200	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Silver	0.076	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Sodium	128	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Thallium	0.265	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6020	Sediment	Vanadium	13.8	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD2	2010-04-28	EPA6010B	Sediment	Zinc	84.1	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	1.322	-0.7328	0.9725	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Aluminum	4850	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Antimony	0.084	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6020	Sediment	Arsenic	1.52	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Barium	50.6	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6020	Sediment	Cadmium	0.385	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Calcium	1870	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6020	Sediment	Chromium	6.61	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Cobalt	3.1	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Copper	6.7	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Iron	9600	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6020	Sediment	Lead	22.9	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Magnesium	2090	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Manganese	126	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA7471A	Sediment	Mercury	0.013	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Nickel	6.52	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Potassium	721	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Silver	0.039	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Sodium	74	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Thallium	0.308	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6020	Sediment	Vanadium	9.07	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCD	CR-BCD3	2010-04-28	EPA6010B	Sediment	Zinc	85.2	TRUE	mg/kg	87.85030932	7.024779419	555.0700073	409784	5367284	OU 2 Upper Laucustrine CSM Unit	0.8983	-0.7848	1.0474	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Aluminum	5880	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Antimony	0.073	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6020	Sediment	Arsenic	1.42	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Barium	66.4	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6020	Sediment	Cadmium	0.356	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Calcium	2240	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6020	Sediment	Chromium	5.55	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Cobalt	3.2	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Copper	9	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Iron	10500	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6020	Sediment	Lead	12.7	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Magnesium	3050	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Manganese	181	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Nickel	6.72	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Potassium	833	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Silver	0.041	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Sodium	125	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Thallium	0.275	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6020	Sediment	Vanadium	13.2	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE1	2010-04-28	EPA6010B	Sediment	Zinc	102	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	1.6379	0.1934	0.625	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Aluminum	6470	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Antimony	0.157	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6020	Sediment	Arsenic	1.6	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Barium	63.9	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6020	Sediment	Cadmium	0.703	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Calcium	2200	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6020	Sediment	Chromium	6.08	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Cobalt	3.5	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Copper	9.8	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Iron	10900	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6020	Sediment	Lead	22.5	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Magnesium	3220	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Manganese	188	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Nickel	6.71	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Potassium	832	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Silver	0.035	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Sodium	120	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Thallium	0.324	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6020	Sediment	Vanadium	13.7	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE2	2010-04-28	EPA6010B	Sediment	Zinc	122	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	0.8523	-0.6221	0.9761	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Aluminum	9750	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Antimony	0.121	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6020	Sediment	Arsenic	1.17	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Barium	99.1	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6020	Sediment	Cadmium	0.111	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Calcium	1650	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6020	Sediment	Chromium	6.08	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Cobalt	3.5	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Copper	9.5	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Iron	10400	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6020	Sediment	Lead	4.34	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Magnesium	2450	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Manganese	191	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Nickel	6.71	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Potassium	913	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Silver	0.024	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Sodium	101	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Thallium	0.079	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6020	Sediment	Vanadium	11.7	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BCE	CR-BCE3	2010-04-28	EPA6010B	Sediment	Zinc	26.2	TRUE	mg/kg	87.85030932	7.024779419	536.2399902	409939	5366922	OU 2 Upper Laucustrine CSM Unit	2.9569	0.6942	0.7511	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Aluminum	6090	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Antimony	3.3	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6020	Sediment	Arsenic	6.23	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Barium	340	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Beryllium	0.16	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6020	Sediment	Cadmium	4.07	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Calcium	4130	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6020	Sediment	Chromium	9.23	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Cobalt	5.54	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Copper	35.4	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Iron	20100	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Lead	4870	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Magnesium	3730	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Manganese	412	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA7471A	Sediment	Mercury	0.336	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Nickel	10.7	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Potassium	897	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Selenium	0.6	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Silver	4.97	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Sodium	88	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Thallium	0.329	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6020	Sediment	Vanadium	14.7	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA1	2011-04-25	EPA6010B	Sediment	Zinc	751	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-4.8787	-2.0653	0.6499	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Aluminum	9020	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Antimony	0.832	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6020	Sediment	Arsenic	5.04	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Barium	170	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6020	Sediment	Cadmium	1.59	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Calcium	3720	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6020	Sediment	Chromium	10.8	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Cobalt	4.36	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Copper	18.7	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Iron	14000	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Lead	915	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Magnesium	3990	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Manganese	177	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA7471A	Sediment	Mercury	0.175	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Nickel	10.8	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Potassium	1410	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Silver	1.57	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Sodium	110	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Thallium	0.166	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6020	Sediment	Vanadium	16.8	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA2	2011-04-25	EPA6010B	Sediment	Zinc	289	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	-2.3177	-2.5969	0.6595	2
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Aluminum	9120	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Antimony	0.052	FALSE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6020	Sediment	Arsenic	1.57	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Barium	83.1	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6020	Sediment	Cadmium	0.064	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Calcium	2400	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6020	Sediment	Chromium	11.1	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Cobalt	4.43	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Copper	11.1	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Iron	12600	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Lead	7.9	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Magnesium	3280	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Manganese	109	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Potassium	1670	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Silver	0.096	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Sodium	120	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Thallium	0.102	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6020	Sediment	Vanadium	18.3	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFA	CR-BFA3	2011-04-25	EPA6010B	Sediment	Zinc	32.6	TRUE	mg/kg	61.7713646	25.57780819	-283.769989	422854	5400936	OU 1 South	3.4192	0.2275	0.4513	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Aluminum	10200	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Antimony	2.95	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6020	Sediment	Arsenic	8.49	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Barium	436	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6020	Sediment	Cadmium	5.05	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Calcium	17950	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6020	Sediment	Chromium	20.7	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Cobalt	7.245	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Copper	124	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Iron	22050	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Lead	665	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Magnesium	13050	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Manganese	310	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA7471A	Sediment	Mercury	0.6675	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Nickel	16.6	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Potassium	1530	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Silver	2.285	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Sodium	148.5	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Thallium	0.512	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6020	Sediment	Vanadium	25.1	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB1-1	2011-04-25	EPA6010B	Sediment	Zinc	1095	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.9187	-2.6911	-0.7221	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Aluminum	8820	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Antimony	1.5	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6020	Sediment	Arsenic	6.32	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Barium	375	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6020	Sediment	Cadmium	4.89	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Calcium	20700	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6020	Sediment	Chromium	15.9	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Cobalt	5.56	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Copper	68.7	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Iron	19100	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Lead	277	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Magnesium	13900	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Manganese	314	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA7471A	Sediment	Mercury	0.467	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Nickel	13.6	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Potassium	1480	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Selenium	0.6	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Silver	0.922	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Sodium	109	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Thallium	0.318	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6020	Sediment	Vanadium	21	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB2	2011-04-25	EPA6010B	Sediment	Zinc	914	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	-3.5085	-2.6629	-1.3132	2
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Aluminum	9700	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Antimony	0.041	FALSE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6020	Sediment	Arsenic	1.79	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Barium	94.7	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6020	Sediment	Cadmium	0.081	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Calcium	2670	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6020	Sediment	Chromium	13.2	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Cobalt	5.39	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Copper	13.3	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Iron	13700	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Lead	8.2	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Magnesium	3820	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Manganese	261	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA7471A	Sediment	Mercury	0.021	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Nickel	12.8	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Potassium	1770	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Silver	0.054	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Sodium	103	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Thallium	0.115	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6020	Sediment	Vanadium	20.3	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFB	CR-BFB3	2011-04-25	EPA6010B	Sediment	Zinc	38.6	TRUE	mg/kg	61.7713646	25.57780819	-265.5100098	422884	5400971	OU 1 South	3.1609	0.2058	0.65	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Aluminum	6980	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Antimony	1.6	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6020	Sediment	Arsenic	5.16	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Barium	196	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6020	Sediment	Cadmium	2.29	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Calcium	7420	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6020	Sediment	Chromium	11.8	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Cobalt	4.79	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Copper	50	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Iron	18900	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Lead	236	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Magnesium	6010	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Manganese	191	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA7471A	Sediment	Mercury	0.265	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Nickel	12.9	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Potassium	991	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Silver	0.628	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Sodium	106	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Thallium	0.21	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6020	Sediment	Vanadium	16.4	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC1	2011-04-25	EPA6010B	Sediment	Zinc	472	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-2.7368	-2.1769	-0.2549	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Aluminum	4480	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Antimony	0.466	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6020	Sediment	Arsenic	2.5	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Barium	55	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Beryllium	0.12	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6020	Sediment	Cadmium	0.716	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Calcium	1620	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6020	Sediment	Chromium	6.75	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Cobalt	2.43	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Copper	7.4	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Iron	8240	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Lead	318	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Magnesium	2010	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Manganese	156	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA7471A	Sediment	Mercury	0.061	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Nickel	5.82	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Silver	0.574	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Sodium	63	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Thallium	0.051	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6020	Sediment	Vanadium	11.5	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC2	2011-04-25	EPA6010B	Sediment	Zinc	128	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	-1.3251	-2.067	1.1623	2
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Aluminum	9530	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Antimony	0.122	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6020	Sediment	Arsenic	1.39	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Barium	127	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6020	Sediment	Cadmium	0.163	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Calcium	2230	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6020	Sediment	Chromium	12.1	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Cobalt	4.57	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Copper	9.4	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Iron	12500	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Lead	24	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Magnesium	3190	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Manganese	324	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA7471A	Sediment	Mercury	0.012	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Nickel	10.4	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Potassium	1710	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Silver	0.075	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Sodium	93	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Thallium	0.11	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6020	Sediment	Vanadium	16.7	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFC	CR-BFC3	2011-04-25	EPA6010B	Sediment	Zinc	58.9	TRUE	mg/kg	61.7713646	25.57780819	-254.2200012	422939	5401021	OU 1 South	2.0995	0.1793	1.0445	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Aluminum	7740	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Antimony	2.14	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6020	Sediment	Arsenic	5.76	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Barium	248	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6020	Sediment	Cadmium	3.31	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Calcium	14700	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6020	Sediment	Chromium	16.5	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Cobalt	5.64	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Copper	85.6	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Iron	18500	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Lead	196	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Magnesium	10900	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Manganese	255	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA7471A	Sediment	Mercury	0.316	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Nickel	13	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Potassium	1190	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Silver	0.903	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Sodium	122	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Thallium	0.316	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6020	Sediment	Vanadium	22.1	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD1	2011-04-25	EPA6010B	Sediment	Zinc	904	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	-3.0308	-2.3155	-0.7616	2
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Aluminum	8720	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Antimony	0.257	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6020	Sediment	Arsenic	2.6	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Barium	152	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6020	Sediment	Cadmium	0.279	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Calcium	2710	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6020	Sediment	Chromium	11.8	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Cobalt	4.9	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Copper	11.7	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Iron	12700	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Lead	43	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Magnesium	3510	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Manganese	406	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA7471A	Sediment	Mercury	0.034	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Nickel	10.1	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Potassium	1780	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Silver	0.176	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Sodium	90	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Thallium	0.114	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6020	Sediment	Vanadium	15.8	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD2	2011-04-25	EPA6010B	Sediment	Zinc	88.2	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	1.0248	-0.316	0.6661	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Aluminum	9600	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Antimony	0.032	FALSE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6020	Sediment	Arsenic	1.49	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6020	Sediment	Cadmium	0.073	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Calcium	2350	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6020	Sediment	Chromium	12.9	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Cobalt	4.88	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Copper	11.6	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Iron	12800	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Lead	7.2	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Magnesium	3390	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Manganese	233	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Nickel	10.6	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Potassium	1720	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Silver	0.056	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Sodium	89	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Thallium	0.115	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6020	Sediment	Vanadium	18.7	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFD	CR-BFD3	2011-04-25	EPA6010B	Sediment	Zinc	37.7	TRUE	mg/kg	61.7713646	25.57780819	-247.2799988	422934	5401026	OU 1 South	3.4338	0.6221	0.6777	3
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Aluminum	8560	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Antimony	2.86	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6020	Sediment	Arsenic	7.9	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Barium	317	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6020	Sediment	Cadmium	4.14	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Calcium	22800	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6020	Sediment	Chromium	20.4	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Cobalt	6.51	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Copper	113	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Iron	21100	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Lead	182	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Magnesium	15300	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Manganese	311	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA7471A	Sediment	Mercury	0.363	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Nickel	14.2	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Potassium	1440	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Selenium	0.6	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Silver	1.41	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Sodium	142	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Thallium	0.385	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6020	Sediment	Vanadium	25.1	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE1	2011-04-25	EPA6010B	Sediment	Zinc	1170	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-3.1252	-2.2508	-1.3025	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Aluminum	7480	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Antimony	3.44	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6020	Sediment	Arsenic	12.1	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Barium	494	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6020	Sediment	Cadmium	9.42	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Calcium	36300	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6020	Sediment	Chromium	22.4	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Cobalt	5.78	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Copper	149	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Iron	24700	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Lead	406	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Magnesium	20600	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Manganese	414	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA7471A	Sediment	Mercury	0.912	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Nickel	13.4	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Potassium	1120	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Selenium	1.2	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Silver	1.38	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Sodium	127	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Thallium	0.551	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6020	Sediment	Vanadium	25.9	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE2	2011-04-25	EPA6010B	Sediment	Zinc	1820	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-4.7051	-2.7005	-2.0242	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Aluminum	9880	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Antimony	0.446	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6020	Sediment	Arsenic	4.25	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Barium	231	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6020	Sediment	Cadmium	2.23	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Calcium	11900	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6020	Sediment	Chromium	15.6	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Cobalt	5.12	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Copper	32.2	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Iron	17800	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Lead	104	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Magnesium	8820	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA7471A	Sediment	Mercury	0.138	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Nickel	13.5	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Potassium	1450	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Silver	0.319	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Sodium	92	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Thallium	0.168	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6020	Sediment	Vanadium	25	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BFE	CR-BFE3	2011-04-25	EPA6010B	Sediment	Zinc	493	TRUE	mg/kg	61.7713646	25.57780819	-241.7799988	422939	5401036	OU 1 South	-1.5821	-2.1563	-0.5745	2
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Aluminum	21900	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Antimony	67.6	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6020	Sediment	Arsenic	22.1	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Barium	2090	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Beryllium	1.01	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6020	Sediment	Cadmium	1.26	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Calcium	69100	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Chromium	138	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Cobalt	61	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Copper	2630	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Iron	214000	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Lead	185	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Magnesium	7820	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Manganese	4180	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.022	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Nickel	9.48	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Potassium	3780	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Selenium	2.8	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Silver	5.24	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Sodium	2250	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Thallium	0.062	FALSE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Vanadium	43.4	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA1	2009-09-09	EPA6010B	Sediment	Zinc	16900	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.3509	5.7964	0.1364	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Aluminum	20900	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Antimony	63.9	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6020	Sediment	Arsenic	23.2	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Barium	1950	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Beryllium	0.96	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6020	Sediment	Cadmium	1.61	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Calcium	65500	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Chromium	132	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Cobalt	59.2	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Copper	2600	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Iron	206000	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Lead	173	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Magnesium	7470	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Manganese	3900	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.026	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Nickel	10.8	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Potassium	3670	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Selenium	2.8	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Silver	5.73	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Sodium	2200	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Thallium	0.057	FALSE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Vanadium	40.8	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA2	2009-09-09	EPA6010B	Sediment	Zinc	16000	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.4507	5.5309	0.1601	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Aluminum	17300	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Antimony	58.9	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6020	Sediment	Arsenic	17.8	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Barium	1570	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Beryllium	0.73	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6020	Sediment	Cadmium	1.28	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Calcium	54600	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Chromium	111	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Cobalt	48.1	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Copper	2140	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Iron	168000	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Lead	200	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Magnesium	7440	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Manganese	3110	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.034	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Nickel	10.8	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Potassium	3050	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Selenium	2.4	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Silver	4.49	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Sodium	1710	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Thallium	0.085	FALSE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Vanadium	35.6	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSA	CR-BSA3	2009-09-09	EPA6010B	Sediment	Zinc	13600	TRUE	mg/kg	98.65059917	1.282266456	-102.4899979	452522	5424405	OU 1 North	-2.6395	5.0958	0.1541	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Aluminum	24200	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Antimony	63.7	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6020	Sediment	Arsenic	25.8	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Barium	2240	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Beryllium	1.16	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6020	Sediment	Cadmium	1.58	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Calcium	72800	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Chromium	154	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Cobalt	67.4	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Copper	3000	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Iron	238000	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Lead	228	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Magnesium	7110	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Manganese	4570	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.03	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Nickel	10.7	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Potassium	4190	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Selenium	3	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Silver	6.11	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Sodium	2490	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Thallium	0.048	FALSE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Vanadium	48.5	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB1	2009-09-09	EPA6010B	Sediment	Zinc	18800	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.5026	5.709	0.3461	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Aluminum	23200	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Antimony	86.3	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6020	Sediment	Arsenic	23.3	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Barium	2200	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Beryllium	0.97	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6020	Sediment	Cadmium	1.03	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Calcium	71900	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Chromium	149	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Cobalt	63	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Copper	2950	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Iron	239000	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Lead	184	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Magnesium	7020	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Manganese	4400	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.024	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Nickel	10.9	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Potassium	4090	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Selenium	3.1	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Silver	6.4	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Sodium	2420	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Thallium	0.057	FALSE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Vanadium	45.1	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB2	2009-09-09	EPA6010B	Sediment	Zinc	18800	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.2782	6.0226	0.1778	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Aluminum	23200	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Antimony	56.3	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6020	Sediment	Arsenic	25.2	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Barium	2140	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Beryllium	1.08	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6020	Sediment	Cadmium	0.983	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Calcium	69900	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Chromium	146	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Cobalt	63.2	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Copper	2990	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Iron	245000	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Lead	199	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Magnesium	7020	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Manganese	4300	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.018	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Nickel	11.7	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Potassium	4010	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Selenium	3	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Silver	5.73	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Sodium	2270	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Thallium	0.049	FALSE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Vanadium	44.4	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSB	CR-BSB3	2009-09-09	EPA6010B	Sediment	Zinc	18900	TRUE	mg/kg	98.65059917	1.282266456	-113.4499969	452537	5424395	OU 1 North	-2.1889	6.0394	0.1867	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Aluminum	21700	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Antimony	50.6	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6020	Sediment	Arsenic	18.8	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Barium	2030	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Beryllium	0.94	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6020	Sediment	Cadmium	1.03	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Calcium	67400	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Chromium	139	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Cobalt	62.6	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Copper	2670	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Iron	218000	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Lead	164	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Magnesium	6840	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Manganese	4010	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.03	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Nickel	11	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Potassium	3700	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Selenium	2.6	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Silver	4.36	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Sodium	2130	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Thallium	0.056	FALSE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Vanadium	41.7	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC1	2009-09-09	EPA6010B	Sediment	Zinc	17500	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.3252	5.8308	0.2927	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Aluminum	20500	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Antimony	66.8	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6020	Sediment	Arsenic	27.1	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Barium	1950	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Beryllium	0.89	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6020	Sediment	Cadmium	1.26	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Calcium	66900	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Chromium	135	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Cobalt	61	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Copper	2620	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Iron	195000	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Lead	206	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Magnesium	7840	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Manganese	3960	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.032	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Nickel	10.9	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Potassium	3590	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Selenium	2.9	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Silver	5.5	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Sodium	2110	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Thallium	0.106	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Vanadium	41	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC2	2009-09-09	EPA6010B	Sediment	Zinc	16200	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4912	5.4778	-0.0016	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Aluminum	23400	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Antimony	53.4	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6020	Sediment	Arsenic	24.2	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Barium	2210	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Beryllium	1.05	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6020	Sediment	Cadmium	1.18	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Calcium	72200	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Chromium	151	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Cobalt	68.2	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Copper	3040	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Iron	232000	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Lead	289	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Magnesium	7820	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Manganese	4430	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.024	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Potassium	4100	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Selenium	3.2	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Silver	5.16	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Sodium	2440	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Thallium	0.068	FALSE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Vanadium	45.5	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSC	CR-BSC3	2009-09-09	EPA6010B	Sediment	Zinc	19300	TRUE	mg/kg	98.65059917	1.282266456	-107.7900009	452527	5424400	OU 1 North	-2.4698	5.7815	0.2617	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Aluminum	5870	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Antimony	17.1	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6020	Sediment	Arsenic	12.7	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Barium	1150	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6020	Sediment	Cadmium	8.32	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Calcium	77000	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Chromium	28.3	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Cobalt	11.5	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Copper	377	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Iron	45600	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Lead	374	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Magnesium	35600	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Manganese	801	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.153	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Nickel	11.3	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Potassium	990	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Silver	1.71	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Sodium	342	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Thallium	0.264	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Vanadium	28.6	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD1	2009-09-09	EPA6010B	Sediment	Zinc	3920	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-4.9321	-0.0603	-2.8372	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Aluminum	13400	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Antimony	14.6	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6020	Sediment	Arsenic	10.5	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Barium	741	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Beryllium	0.45	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6020	Sediment	Cadmium	2.73	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Calcium	40400	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Chromium	50.1	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Cobalt	15.2	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Copper	825	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Iron	105000	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Lead	204	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Magnesium	10100	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Manganese	1930	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.115	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Nickel	7.5	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Potassium	2280	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Selenium	2.2	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Silver	1.7	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Sodium	764	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Thallium	0.204	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Vanadium	31.2	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD2	2009-09-09	EPA6010B	Sediment	Zinc	8210	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.4697	2.5877	-0.2452	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Aluminum	11600	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Antimony	5.64	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6020	Sediment	Arsenic	6.58	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Barium	540	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Beryllium	0.41	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6020	Sediment	Cadmium	5.78	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Calcium	47100	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Chromium	34.2	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Cobalt	10.6	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Copper	469	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Iron	89300	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Lead	208	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Magnesium	17100	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Manganese	1530	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.179	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Nickel	6.89	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Potassium	1970	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Selenium	2	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Silver	1.14	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Sodium	569	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Thallium	0.172	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Vanadium	29.6	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSD	CR-BSD3	2009-09-09	EPA6010B	Sediment	Zinc	7170	TRUE	mg/kg	98.65059917	1.282266456	-121.8300018	452557	5424390	OU 1 North	-3.9078	1.2269	-0.5937	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Aluminum	12000	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Antimony	42.9	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6020	Sediment	Arsenic	16.1	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Barium	1070	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Beryllium	0.47	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6020	Sediment	Cadmium	2.62	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Calcium	54900	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Chromium	69	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Cobalt	28.3	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Copper	1340	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Iron	103000	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Lead	180	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Magnesium	15900	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Manganese	2080	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.079	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Nickel	9.41	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Potassium	2050	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Selenium	1.8	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Silver	3	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Sodium	1070	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Thallium	0.143	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Vanadium	30.4	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE1	2009-09-09	EPA6010B	Sediment	Zinc	8500	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3035	3.1806	-0.8309	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Aluminum	18500	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Antimony	65.2	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6020	Sediment	Arsenic	22.1	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Barium	1720	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Beryllium	0.89	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6020	Sediment	Cadmium	1.51	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Calcium	60700	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Cobalt	38.8	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Copper	2560	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Iron	173000	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Lead	193	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Magnesium	8470	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Manganese	3610	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.059	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Potassium	3420	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Selenium	2.4	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Silver	6.26	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Sodium	2000	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Thallium	0.096	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Vanadium	36.5	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE2	2009-09-09	EPA6010B	Sediment	Zinc	14300	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-2.8942	4.7512	-0.0245	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Aluminum	19900	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Antimony	41	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6020	Sediment	Arsenic	17.7	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Barium	1470	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Beryllium	0.78	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6020	Sediment	Cadmium	1.53	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Calcium	55700	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Chromium	95.1	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Cobalt	32.8	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Copper	2070	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Iron	186000	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Lead	225	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Magnesium	6640	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Manganese	2950	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.148	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Nickel	8.69	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Potassium	3390	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Selenium	2.6	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Silver	2.07	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Sodium	1320	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Thallium	0.107	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Vanadium	38.2	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-BSE	CR-BSE3	2009-09-09	EPA6010B	Sediment	Zinc	15200	TRUE	mg/kg	98.65059917	1.282266456	-93.3799973	452622	5424435	OU 1 North	-3.3047	4.2372	0.2302	1
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Aluminum	10300	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Antimony	1.53	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6020	Sediment	Arsenic	11.7	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Barium	1060	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Beryllium	0.51	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6020	Sediment	Cadmium	9.42	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Calcium	36800	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6020	Sediment	Chromium	23.9	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Cobalt	6.43	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Copper	58.5	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Iron	25600	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6020	Sediment	Lead	477	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Magnesium	23400	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Manganese	405	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA7471A	Sediment	Mercury	0.987	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Nickel	21.3	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Potassium	1580	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Selenium	0.6	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Silver	0.945	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Sodium	149	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Thallium	0.493	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6020	Sediment	Vanadium	32.8	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA1	2011-04-27	EPA6010B	Sediment	Zinc	1320	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.1669	-3.161	-2.0633	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Aluminum	9110	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Antimony	2.38	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6020	Sediment	Arsenic	12.8	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Barium	752	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Beryllium	0.42	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6020	Sediment	Cadmium	10.4	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Calcium	32300	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6020	Sediment	Chromium	17.6	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Cobalt	5.31	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Copper	60.6	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Iron	21700	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6020	Sediment	Lead	583	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Magnesium	18800	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Manganese	343	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA7471A	Sediment	Mercury	1.77	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Nickel	15.2	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Potassium	1390	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Silver	0.835	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Sodium	123	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Thallium	0.387	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6020	Sediment	Vanadium	27.4	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA2	2011-04-27	EPA6010B	Sediment	Zinc	1360	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	-4.7661	-3.624	-2.0213	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Aluminum	7930	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Antimony	0.191	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6020	Sediment	Arsenic	1.68	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Barium	110	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6020	Sediment	Cadmium	0.568	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Calcium	2870	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6020	Sediment	Chromium	8.86	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Cobalt	3.44	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Copper	10.1	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Iron	11000	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6020	Sediment	Lead	30.8	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Magnesium	2890	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Manganese	171	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA7471A	Sediment	Mercury	0.029	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Nickel	7.83	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Potassium	1040	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Silver	0.067	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Sodium	83	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Thallium	0.095	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6020	Sediment	Vanadium	14	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFA	CR-CFA3	2011-04-27	EPA6010B	Sediment	Zinc	61.8	TRUE	mg/kg	48.78556321	49.37913625	-990.2399902	417400	5380224	OU 2 Upper Laucustrine CSM Unit	0.5976	-1.0854	0.62	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Aluminum	7640	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Antimony	1.38	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6020	Sediment	Arsenic	9.65	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Barium	885	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6020	Sediment	Cadmium	7.58	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Calcium	30800	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6020	Sediment	Chromium	16	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Cobalt	4.58	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Copper	42.6	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Iron	19400	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6020	Sediment	Lead	413	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Magnesium	18100	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Manganese	306	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA7471A	Sediment	Mercury	0.937	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Nickel	14.1	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Potassium	1160	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Silver	0.567	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Sodium	103	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Thallium	0.417	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6020	Sediment	Vanadium	24.9	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB1	2011-04-27	EPA6010B	Sediment	Zinc	980	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-4.4809	-3.2874	-2.3582	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Aluminum	9810	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Antimony	0.716	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6020	Sediment	Arsenic	6.1	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Barium	362	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6020	Sediment	Cadmium	3.01	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Calcium	12500	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6020	Sediment	Chromium	15.8	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Cobalt	5.37	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Copper	25.4	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Iron	17000	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6020	Sediment	Lead	167	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Magnesium	9010	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Manganese	302	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA7471A	Sediment	Mercury	0.294	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Nickel	13.6	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Potassium	2000	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Silver	0.25	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Sodium	98	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Thallium	0.23	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6020	Sediment	Vanadium	22.3	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB2	2011-04-27	EPA6010B	Sediment	Zinc	398	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	-2.0506	-2.5538	-0.8243	2
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Aluminum	10700	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Antimony	0.069	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6020	Sediment	Arsenic	1.51	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Barium	121	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6020	Sediment	Cadmium	0.162	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Calcium	2830	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6020	Sediment	Chromium	15	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Cobalt	5.73	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Copper	14	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Iron	15300	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6020	Sediment	Lead	7	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Magnesium	3730	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Manganese	299	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Nickel	13.1	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Potassium	2200	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Silver	0.123	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Sodium	114	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Thallium	0.136	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6020	Sediment	Vanadium	21.2	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFB	CR-CFB3	2011-04-27	EPA6010B	Sediment	Zinc	43.8	TRUE	mg/kg	48.78556321	49.37913625	-1073.969971	417480	5380194	OU 2 Upper Laucustrine CSM Unit	3.4384	0.772	0.8665	3
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Aluminum	8840	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Antimony	0.497	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6020	Sediment	Arsenic	2.44	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Barium	115	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6020	Sediment	Cadmium	1.62	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Calcium	3750	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6020	Sediment	Chromium	16.9	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Cobalt	5.85	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Copper	33.2	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Iron	15300	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6020	Sediment	Lead	82.3	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Magnesium	4510	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Manganese	190	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA7471A	Sediment	Mercury	0.192	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Nickel	14.7	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Potassium	1470	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Silver	0.406	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Sodium	137	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Thallium	0.795	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6020	Sediment	Vanadium	21.6	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC1	2011-04-27	EPA6010B	Sediment	Zinc	282	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-0.7862	-2.0462	1.4198	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Aluminum	8870	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Antimony	0.763	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6020	Sediment	Arsenic	4.9	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Barium	296	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6020	Sediment	Cadmium	3.77	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Calcium	8570	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6020	Sediment	Chromium	15.6	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Cobalt	5.76	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Copper	30.8	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Iron	17500	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6020	Sediment	Lead	204	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Magnesium	7760	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Manganese	241	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA7471A	Sediment	Mercury	0.476	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Nickel	16.4	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Potassium	1260	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Silver	0.33	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Sodium	101	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Thallium	0.474	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6020	Sediment	Vanadium	22.2	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC2	2011-04-27	EPA6010B	Sediment	Zinc	490	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	-2.5187	-2.8201	-0.1356	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Aluminum	12500	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Antimony	0.3	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6020	Sediment	Arsenic	4.55	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Barium	149	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Beryllium	0.44	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6020	Sediment	Cadmium	1.26	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Calcium	3490	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6020	Sediment	Chromium	17.2	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Cobalt	5.85	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Copper	19.4	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Iron	16800	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6020	Sediment	Lead	81.8	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Magnesium	4840	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Manganese	260	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA7471A	Sediment	Mercury	0.125	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Nickel	15.4	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Potassium	2190	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Silver	0.099	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Sodium	114	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Thallium	0.166	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6020	Sediment	Vanadium	21.6	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFC	CR-CFC3	2011-04-27	EPA6010B	Sediment	Zinc	167	TRUE	mg/kg	48.78556321	49.37913625	-1247.150024	417640	5380124	OU 2 Upper Laucustrine CSM Unit	0.1224	-1.9794	1.0103	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Aluminum	11400	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Antimony	1.51	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6020	Sediment	Arsenic	8.3	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Barium	718	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6020	Sediment	Cadmium	8.28	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Calcium	21300	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6020	Sediment	Chromium	23.4	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Cobalt	6.65	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Copper	64.1	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Iron	22100	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6020	Sediment	Lead	441	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Magnesium	16000	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Manganese	351	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA7471A	Sediment	Mercury	1.36	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Nickel	18.5	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Potassium	1700	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Silver	0.984	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Sodium	146	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Thallium	0.758	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6020	Sediment	Vanadium	30.3	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD1	2011-04-27	EPA6010B	Sediment	Zinc	1120	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-3.9355	-3.254	-1.0323	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Aluminum	7190	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Antimony	0.581	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6020	Sediment	Arsenic	3.9	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Barium	227	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6020	Sediment	Cadmium	2.33	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Calcium	6970	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6020	Sediment	Chromium	11.6	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Cobalt	4.31	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Copper	19.4	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Iron	13300	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6020	Sediment	Lead	129	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Magnesium	5810	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Manganese	217	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA7471A	Sediment	Mercury	0.243	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Nickel	10.7	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Potassium	1180	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Silver	0.184	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Sodium	86	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Thallium	0.213	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6020	Sediment	Vanadium	18.3	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD2	2011-04-27	EPA6010B	Sediment	Zinc	283	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.9895	-2.4972	-0.26	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Aluminum	12000	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Antimony	0.508	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6020	Sediment	Arsenic	8.76	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Barium	189	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Beryllium	0.44	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6020	Sediment	Cadmium	3.24	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Calcium	4970	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6020	Sediment	Chromium	17	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Cobalt	7.12	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Copper	24.9	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Iron	16400	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6020	Sediment	Lead	189	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Magnesium	5520	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Manganese	374	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA7471A	Sediment	Mercury	0.389	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Nickel	14.3	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Potassium	2330	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Silver	0.176	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Sodium	122	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Thallium	0.236	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6020	Sediment	Vanadium	22.8	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFD	CR-CFD3	2011-04-27	EPA6010B	Sediment	Zinc	329	TRUE	mg/kg	48.78556321	49.37913625	-1194.589966	417620	5380194	OU 2 Upper Laucustrine CSM Unit	-1.3129	-2.5985	0.687	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Aluminum	6200	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6020	Sediment	Arsenic	2.81	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Barium	157	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6020	Sediment	Cadmium	1.2	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Calcium	4150	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6020	Sediment	Chromium	10.9	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Cobalt	3.82	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Copper	21.7	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Iron	12000	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6020	Sediment	Lead	82.7	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Magnesium	3910	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Manganese	172	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA7471A	Sediment	Mercury	0.156	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Nickel	9.64	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Potassium	1040	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Silver	0.26	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Sodium	76	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Thallium	0.282	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6020	Sediment	Vanadium	14.3	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE1	2011-04-27	EPA6010B	Sediment	Zinc	220	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-1.4705	-1.9785	0.2999	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Aluminum	8440	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Antimony	1.5	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6020	Sediment	Arsenic	9.66	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Barium	573	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6020	Sediment	Cadmium	7.51	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Calcium	20300	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6020	Sediment	Chromium	16.2	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Cobalt	5.2	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Copper	49.2	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6020	Sediment	Lead	418	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Magnesium	13800	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Manganese	313	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA7471A	Sediment	Mercury	1.05	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Nickel	14	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Potassium	1320	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Silver	0.633	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Sodium	104	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Thallium	0.421	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6020	Sediment	Vanadium	24.5	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE2	2011-04-27	EPA6010B	Sediment	Zinc	926	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	-4.1388	-3.3511	-1.5093	2
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Aluminum	10900	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Antimony	0.158	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6020	Sediment	Arsenic	4.14	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Barium	128	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6020	Sediment	Cadmium	0.419	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Calcium	3040	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6020	Sediment	Chromium	14.2	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Cobalt	5.41	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Iron	15100	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6020	Sediment	Lead	20.9	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Magnesium	3850	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Manganese	311	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA7471A	Sediment	Mercury	0.04	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Nickel	12.7	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Potassium	2360	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Silver	0.054	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Sodium	108	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Thallium	0.137	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6020	Sediment	Vanadium	19.3	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CFE	CR-CFE3	2011-04-27	EPA6010B	Sediment	Zinc	62.5	TRUE	mg/kg	48.78556321	49.37913625	-1091	417500	5380194	OU 2 Upper Laucustrine CSM Unit	1.8284	-0.7763	0.5883	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Aluminum	9170	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Antimony	0.167	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6020	Sediment	Arsenic	2.44	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Barium	100	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6020	Sediment	Cadmium	0.132	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Calcium	3570	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6020	Sediment	Chromium	14.9	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Cobalt	6.34	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Copper	17.6	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Iron	17600	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Magnesium	4080	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Manganese	215	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Nickel	16.4	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Potassium	1250	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Silver	0.069	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Sodium	103	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Thallium	0.096	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6020	Sediment	Vanadium	21.4	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA1	2011-04-28	EPA6010B	Sediment	Zinc	47.7	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	3.0936	0.369	0.3724	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Aluminum	9780	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Antimony	0.192	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6020	Sediment	Arsenic	2.6	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Barium	95.9	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6020	Sediment	Cadmium	0.156	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Calcium	4990	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6020	Sediment	Chromium	16.1	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Cobalt	6.66	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Copper	19.9	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Iron	19800	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6020	Sediment	Lead	6.98	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Magnesium	4860	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Manganese	229	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA7471A	Sediment	Mercury	0.014	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Nickel	18.4	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Potassium	1160	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Silver	0.149	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Sodium	117	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Thallium	0.09	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6020	Sediment	Vanadium	22.5	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA2	2011-04-28	EPA6010B	Sediment	Zinc	50.7	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9991	0.2423	0.1628	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Aluminum	7280	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Antimony	0.206	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6020	Sediment	Arsenic	2.71	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Barium	70.9	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6020	Sediment	Cadmium	0.14	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Calcium	9090	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6020	Sediment	Chromium	13	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Cobalt	5.81	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Copper	15.3	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Iron	17400	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6020	Sediment	Lead	5.62	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Magnesium	5630	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Manganese	178	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Nickel	15.1	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Potassium	867	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Silver	0.132	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Sodium	115	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Thallium	0.081	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6020	Sediment	Vanadium	20.5	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRA	CR-CRA3	2011-04-28	EPA6010B	Sediment	Zinc	44.2	TRUE	mg/kg	71.63113469	26.85750509	-1159.98999	417930	5381031	OU 2 Upper Laucustrine CSM Unit	2.9564	0.1413	-0.8153	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Aluminum	14400	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Antimony	0.189	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6020	Sediment	Arsenic	1.63	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Barium	144	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Beryllium	0.48	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6020	Sediment	Cadmium	0.158	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Calcium	2550	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6020	Sediment	Chromium	15.4	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Cobalt	7.31	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Copper	17.8	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Iron	19000	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6020	Sediment	Lead	8.14	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Magnesium	4410	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Manganese	423	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Nickel	16.6	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Potassium	2600	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Silver	0.039	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Sodium	129	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Thallium	0.132	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6020	Sediment	Vanadium	20.9	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB1	2011-04-28	EPA6010B	Sediment	Zinc	57.8	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3157	0.7566	1.2246	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Aluminum	13700	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Antimony	0.181	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6020	Sediment	Arsenic	2.08	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Barium	145	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Beryllium	0.48	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6020	Sediment	Cadmium	0.156	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Calcium	3200	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6020	Sediment	Chromium	19.2	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Cobalt	7.53	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Copper	21.7	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Iron	19500	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6020	Sediment	Lead	8.02	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Magnesium	4640	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Manganese	361	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Nickel	18	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Potassium	2470	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Silver	0.087	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Sodium	152	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Thallium	0.116	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6020	Sediment	Vanadium	22.2	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB2	2011-04-28	EPA6010B	Sediment	Zinc	57.3	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	3.3073	0.7362	0.9529	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Aluminum	10200	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Antimony	0.226	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6020	Sediment	Arsenic	2.72	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Barium	136	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6020	Sediment	Cadmium	0.216	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Calcium	17500	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6020	Sediment	Chromium	15.7	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Cobalt	7.26	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Copper	21.2	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6020	Sediment	Lead	7.52	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Magnesium	6400	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Manganese	314	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA7471A	Sediment	Mercury	0.012	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Nickel	18.6	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Potassium	1900	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Silver	0.167	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Sodium	151	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Thallium	0.099	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6020	Sediment	Vanadium	23.8	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRB	CR-CRB3	2011-04-28	EPA6010B	Sediment	Zinc	55.9	TRUE	mg/kg	71.63113469	26.85750509	-1137.349976	417920	5381061	OU 2 Upper Laucustrine CSM Unit	2.6478	0.3507	-1.0847	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Aluminum	7810	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Antimony	0.185	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6020	Sediment	Arsenic	2.89	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Barium	88.2	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6020	Sediment	Cadmium	0.531	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Calcium	2900	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6020	Sediment	Chromium	10.8	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Cobalt	7.72	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Copper	14.8	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Iron	16400	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6020	Sediment	Lead	16	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Magnesium	4200	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Manganese	373	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Nickel	17.4	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Potassium	1020	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Silver	0.04	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Sodium	75	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Thallium	0.234	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6020	Sediment	Vanadium	19	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC1	2011-04-28	EPA6010B	Sediment	Zinc	97.6	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	1.9102	-0.1485	0.759	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Aluminum	9450	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Antimony	0.18	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6020	Sediment	Arsenic	2	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Barium	93.1	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6020	Sediment	Cadmium	1.03	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Calcium	2310	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6020	Sediment	Chromium	11.5	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Cobalt	5.46	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Copper	12.8	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Iron	14600	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6020	Sediment	Lead	29.4	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Magnesium	3420	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Manganese	211	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA7471A	Sediment	Mercury	0.036	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Nickel	13	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Potassium	1400	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Silver	0.048	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Sodium	91	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Thallium	0.257	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6020	Sediment	Vanadium	17.3	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC2	2011-04-28	EPA6010B	Sediment	Zinc	132	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	0.8515	-1.3213	1.4738	2
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Aluminum	14300	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Antimony	0.172	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6020	Sediment	Arsenic	2.02	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Barium	149	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Beryllium	0.46	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6020	Sediment	Cadmium	0.148	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Calcium	2570	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6020	Sediment	Chromium	14.1	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Cobalt	6.92	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Copper	18.2	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Iron	18200	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6020	Sediment	Lead	7.96	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Magnesium	3910	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Manganese	371	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Nickel	15.2	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Potassium	2050	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Silver	0.07	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Sodium	143	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Thallium	0.113	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6020	Sediment	Vanadium	20.5	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRC	CR-CRC3	2011-04-28	EPA6010B	Sediment	Zinc	52.4	TRUE	mg/kg	71.63113469	26.85750509	-1137.300049	417930	5381081	OU 2 Upper Laucustrine CSM Unit	3.2091	0.8535	0.9803	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Aluminum	7760	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Antimony	0.083	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6020	Sediment	Arsenic	1.16	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Barium	84.5	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6020	Sediment	Cadmium	0.101	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Calcium	2000	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6020	Sediment	Chromium	9.88	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Cobalt	3.8	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Copper	9.9	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Iron	11100	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6020	Sediment	Lead	4.04	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Magnesium	2690	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Manganese	178	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Nickel	8.72	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Potassium	1040	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Silver	0.03	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Sodium	96	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Thallium	0.075	FALSE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6020	Sediment	Vanadium	16	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD1	2011-04-28	EPA6010B	Sediment	Zinc	29.9	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.3459	0.7102	0.6979	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Aluminum	6000	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Antimony	0.069	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6020	Sediment	Arsenic	1.13	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Barium	63.9	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6020	Sediment	Cadmium	0.092	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Calcium	2250	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6020	Sediment	Chromium	9.69	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Cobalt	3.74	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Copper	9.5	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Iron	11100	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6020	Sediment	Lead	3.6	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Magnesium	2840	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Manganese	172	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Nickel	9.13	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Potassium	1130	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Sodium	88	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Thallium	0.066	FALSE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6020	Sediment	Vanadium	15.4	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD2	2011-04-28	EPA6010B	Sediment	Zinc	30.5	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.5528	0.7881	0.5036	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Aluminum	6570	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Antimony	0.091	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6020	Sediment	Arsenic	1.31	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Barium	63.8	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6020	Sediment	Cadmium	0.1	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Calcium	2570	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6020	Sediment	Chromium	12.2	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Cobalt	4.85	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Copper	12.1	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Iron	12800	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6020	Sediment	Lead	4.52	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Magnesium	3470	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Manganese	205	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Nickel	11.6	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Potassium	1460	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Silver	0.055	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Sodium	105	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Thallium	0.08	FALSE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6020	Sediment	Vanadium	18.6	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRD	CR-CRD3	2011-04-28	EPA6010B	Sediment	Zinc	34.5	TRUE	mg/kg	71.63113469	26.85750509	-1039.800049	417860	5381161	OU 2 Upper Laucustrine CSM Unit	3.7027	0.7189	0.6859	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Aluminum	3590	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Antimony	0.064	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6020	Sediment	Arsenic	0.91	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Barium	39.7	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Beryllium	0.13	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6020	Sediment	Cadmium	0.101	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Calcium	1700	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6020	Sediment	Chromium	5.77	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Cobalt	2.48	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Copper	6	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Iron	7370	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6020	Sediment	Lead	3.3	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Magnesium	1970	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Manganese	111	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Nickel	6.16	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Potassium	513	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Silver	0.02	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Sodium	68	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Thallium	0.079	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6020	Sediment	Vanadium	9.79	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE1	2011-04-28	EPA6010B	Sediment	Zinc	26.1	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.9404	0.5844	0.3108	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Aluminum	4140	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Antimony	0.123	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6020	Sediment	Arsenic	1.13	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Barium	41.6	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6020	Sediment	Cadmium	0.143	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Calcium	1850	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6020	Sediment	Chromium	6.42	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Cobalt	2.7	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Copper	6.8	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Iron	8350	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6020	Sediment	Lead	4.46	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Magnesium	2150	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Manganese	119	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Nickel	6.84	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Potassium	628	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Silver	0.042	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Sodium	68	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Thallium	0.108	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6020	Sediment	Vanadium	11.3	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE2	2011-04-28	EPA6010B	Sediment	Zinc	31.3	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	2.7409	0.2138	0.4137	3
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Aluminum	7900	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Antimony	0.137	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6020	Sediment	Arsenic	1.45	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Barium	80.9	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6020	Sediment	Cadmium	0.941	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Calcium	1910	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6020	Sediment	Chromium	8.26	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Cobalt	3.36	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Copper	9	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Iron	11000	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6020	Sediment	Lead	19.6	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Magnesium	2570	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Manganese	211	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA7471A	Sediment	Mercury	0.025	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Nickel	8.67	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Potassium	943	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Sodium	70	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Thallium	0.153	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6020	Sediment	Vanadium	12.4	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CRE	CR-CRE3	2011-04-28	EPA6010B	Sediment	Zinc	97.9	TRUE	mg/kg	71.63113469	26.85750509	-1016.289978	417860	5381221	OU 2 Upper Laucustrine CSM Unit	0.6607	-1.178	1.3142	2
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Aluminum	4290	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Antimony	0.071	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6020	Sediment	Arsenic	1.76	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Barium	63.1	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Beryllium	0.16	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6020	Sediment	Cadmium	0.066	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Calcium	5600	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6020	Sediment	Chromium	3.91	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Cobalt	5.53	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Copper	10	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6020	Sediment	Lead	3.25	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Magnesium	3430	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Manganese	307	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Nickel	4.16	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Potassium	749	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Silver	0.027	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Sodium	142	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Thallium	0.081	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6020	Sediment	Vanadium	24.2	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA1	2011-05-03	EPA6010B	Sediment	Zinc	34.8	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.2992	2.2247	-0.9258	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Aluminum	4280	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Antimony	0.135	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6020	Sediment	Arsenic	3.13	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Barium	64.2	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Beryllium	0.16	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6020	Sediment	Cadmium	0.065	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Calcium	5530	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6020	Sediment	Chromium	4.05	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Cobalt	5.81	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Copper	6.1	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Iron	20000	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6020	Sediment	Lead	3.47	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Magnesium	3690	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Manganese	297	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Nickel	4.63	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Potassium	722	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Silver	0.032	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Sodium	139	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Thallium	0.079	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6020	Sediment	Vanadium	25.6	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA2	2011-05-03	EPA6010B	Sediment	Zinc	35.6	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.5966	2.0374	-1.3251	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Aluminum	4390	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Antimony	0.089	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6020	Sediment	Arsenic	1.71	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Barium	65.3	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6020	Sediment	Cadmium	0.059	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Calcium	5400	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6020	Sediment	Chromium	3.6	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Cobalt	5.71	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Copper	6.4	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Iron	19200	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6020	Sediment	Lead	3.37	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Magnesium	3460	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Manganese	303	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Nickel	4.3	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Potassium	746	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Silver	0.027	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Sodium	141	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Thallium	0.075	FALSE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6020	Sediment	Vanadium	22.7	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSA	CR-CSA3	2011-05-03	EPA6010B	Sediment	Zinc	36.8	TRUE	mg/kg	91.79454148	5.438310663	-709.9799805	351465	5311854	OU 2 Lower Laucustrine CSM Unit	3.3513	2.0354	-0.8688	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Aluminum	4190	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Antimony	0.086	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6020	Sediment	Arsenic	1.47	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Barium	60.4	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6020	Sediment	Cadmium	0.052	FALSE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Calcium	5320	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6020	Sediment	Chromium	3.78	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Cobalt	6.23	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Copper	6.3	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Iron	24000	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6020	Sediment	Lead	3.37	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Magnesium	3680	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Manganese	325	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Nickel	4.72	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Potassium	732	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Silver	0.029	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Sodium	149	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Thallium	0.053	FALSE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6020	Sediment	Vanadium	25.6	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB1	2011-05-03	EPA6010B	Sediment	Zinc	39.3	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.6603	2.4318	-0.7374	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Aluminum	3840	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Antimony	0.076	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6020	Sediment	Arsenic	1.28	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Barium	58.6	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6020	Sediment	Cadmium	0.061	FALSE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Calcium	4530	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6020	Sediment	Chromium	3.42	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Cobalt	6.21	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Copper	5.9	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Iron	24700	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6020	Sediment	Lead	3.18	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Magnesium	3420	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Manganese	319	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Nickel	4.57	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Potassium	619	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Silver	0.025	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Sodium	129	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Thallium	0.062	FALSE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6020	Sediment	Vanadium	24.5	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB2	2011-05-03	EPA6010B	Sediment	Zinc	36.3	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.4396	2.2967	-0.57	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Aluminum	4390	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Antimony	0.078	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6020	Sediment	Arsenic	1.44	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Barium	69.5	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6020	Sediment	Cadmium	0.062	FALSE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Calcium	5440	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6020	Sediment	Chromium	3.89	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Cobalt	6.24	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Copper	6.6	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Iron	18200	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6020	Sediment	Lead	2.94	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Magnesium	3270	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Manganese	333	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Nickel	4.33	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Potassium	736	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Silver	0.025	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Sodium	140	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Thallium	0.072	FALSE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6020	Sediment	Vanadium	23.1	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSB	CR-CSB3	2011-05-03	EPA6010B	Sediment	Zinc	34.8	TRUE	mg/kg	91.79454148	5.438310663	-708.1099854	351473	5311849	OU 2 Lower Laucustrine CSM Unit	3.401	2.1969	-0.7331	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Aluminum	4860	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Antimony	0.058	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Barium	71.5	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6020	Sediment	Cadmium	0.065	FALSE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Calcium	6350	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6020	Sediment	Chromium	4.31	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Cobalt	5.79	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Copper	7	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6020	Sediment	Lead	3.61	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Magnesium	4010	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Manganese	292	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Nickel	4.95	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Potassium	908	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Silver	0.031	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Sodium	145	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Thallium	0.077	FALSE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6020	Sediment	Vanadium	22.9	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC1	2011-05-03	EPA6010B	Sediment	Zinc	38.1	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.5076	1.9584	-1.1092	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Aluminum	4480	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Antimony	0.081	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6020	Sediment	Arsenic	1.86	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Barium	64.5	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6020	Sediment	Cadmium	0.065	FALSE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Calcium	5690	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6020	Sediment	Chromium	4.03	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Cobalt	5.2	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Copper	6	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Iron	17100	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6020	Sediment	Lead	4.95	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Magnesium	3580	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Manganese	255	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Nickel	4.11	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Potassium	784	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Silver	0.029	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Sodium	144	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Thallium	0.068	FALSE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6020	Sediment	Vanadium	23	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC2	2011-05-03	EPA6010B	Sediment	Zinc	34.4	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.2936	1.8542	-1.013	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Aluminum	4360	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Antimony	0.075	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6020	Sediment	Arsenic	1.76	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Barium	64.5	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6020	Sediment	Cadmium	0.059	FALSE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Calcium	5800	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6020	Sediment	Chromium	3.63	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Cobalt	5.36	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Copper	6.1	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Iron	18000	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6020	Sediment	Lead	3.18	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Magnesium	3570	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Manganese	260	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Nickel	4.27	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Potassium	777	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Silver	0.027	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Sodium	136	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Thallium	0.088	FALSE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6020	Sediment	Vanadium	23.4	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSC	CR-CSC3	2011-05-03	EPA6010B	Sediment	Zinc	35.1	TRUE	mg/kg	91.79454148	5.438310663	-696.0200195	351480	5311859	OU 2 Lower Laucustrine CSM Unit	3.4915	1.9932	-1.1064	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Aluminum	5430	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Antimony	0.073	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6020	Sediment	Arsenic	2.31	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Barium	81.5	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6020	Sediment	Cadmium	0.089	FALSE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Calcium	8230	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6020	Sediment	Chromium	4.59	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Cobalt	6.36	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Copper	7.4	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Iron	19900	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6020	Sediment	Lead	4.43	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Magnesium	4360	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Manganese	334	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Nickel	5.15	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Potassium	1020	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Silver	0.043	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Sodium	175	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Thallium	0.096	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6020	Sediment	Vanadium	26.3	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD1	2011-05-03	EPA6010B	Sediment	Zinc	42.1	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1732	1.7007	-1.2052	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Aluminum	4865	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Antimony	0.071	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6020	Sediment	Arsenic	2.175	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Barium	73.15	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6020	Sediment	Cadmium	0.092	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Calcium	7185	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6020	Sediment	Chromium	3.99	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Cobalt	5.97	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Copper	6.4	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Iron	18000	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6020	Sediment	Lead	3.74	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Magnesium	3990	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Manganese	304	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Nickel	4.535	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Potassium	895.5	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Silver	0.0415	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Sodium	143.5	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Thallium	0.121	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6020	Sediment	Vanadium	22.75	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD2-1	2011-05-03	EPA6010B	Sediment	Zinc	38.45	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.1997	1.7091	-1.2295	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Aluminum	4830	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Antimony	0.074	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6020	Sediment	Arsenic	4.12	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Barium	64.6	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6020	Sediment	Cadmium	0.092	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Calcium	6160	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6020	Sediment	Chromium	4.47	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Cobalt	5.23	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Copper	6.1	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Iron	16900	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6020	Sediment	Lead	4.38	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Magnesium	3870	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Manganese	235	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Nickel	4.55	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Potassium	963	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Silver	0.029	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Sodium	135	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Thallium	0.105	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6020	Sediment	Vanadium	22.1	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSD	CR-CSD3	2011-05-03	EPA6010B	Sediment	Zinc	39.2	TRUE	mg/kg	91.79454148	5.438310663	-682.4500122	351500	5311859	OU 2 Lower Laucustrine CSM Unit	3.2697	1.307	-1.4798	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Aluminum	4750	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Antimony	0.068	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6020	Sediment	Arsenic	1.88	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Barium	71.8	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6020	Sediment	Cadmium	0.059	FALSE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Calcium	6320	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6020	Sediment	Chromium	3.97	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Cobalt	6.07	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Copper	6.8	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Iron	19800	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6020	Sediment	Lead	3.55	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Magnesium	4030	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Manganese	322	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Nickel	4.86	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Potassium	880	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Silver	0.028	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Sodium	147	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Thallium	0.074	FALSE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6020	Sediment	Vanadium	22.9	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE1	2011-05-03	EPA6010B	Sediment	Zinc	38.2	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4184	2.0278	-1.0928	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Aluminum	4650	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Antimony	0.065	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6020	Sediment	Arsenic	1.76	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Barium	71.7	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6020	Sediment	Cadmium	0.069	FALSE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Calcium	6040	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6020	Sediment	Chromium	4.33	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Cobalt	5.44	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Copper	6.2	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Iron	17500	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6020	Sediment	Lead	3.34	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Magnesium	3470	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Manganese	308	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Nickel	4.31	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Potassium	837	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Silver	0.027	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Sodium	146	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Thallium	0.078	FALSE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6020	Sediment	Vanadium	23	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE2	2011-05-03	EPA6010B	Sediment	Zinc	35.7	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4535	2.0914	-0.9947	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Aluminum	4240	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Antimony	0.076	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6020	Sediment	Arsenic	1.59	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Barium	62.5	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6020	Sediment	Cadmium	0.055	FALSE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Calcium	5380	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6020	Sediment	Chromium	3.9	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Cobalt	5.02	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Copper	5.5	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Iron	16800	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6020	Sediment	Lead	3.71	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Magnesium	3290	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Manganese	266	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Nickel	3.93	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Potassium	730	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Silver	0.026	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Sodium	134	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Thallium	0.07	FALSE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6020	Sediment	Vanadium	21.9	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-CSE	CR-CSE3	2011-05-03	EPA6010B	Sediment	Zinc	33.8	TRUE	mg/kg	91.79454148	5.438310663	-714.7800293	351450	5311862	OU 2 Lower Laucustrine CSM Unit	3.4187	2.064	-0.9891	3
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Aluminum	13400	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Antimony	72.1	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6020	Sediment	Arsenic	25.9	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Barium	1130	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6020	Sediment	Cadmium	1.47	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Calcium	39800	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Chromium	81.9	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Cobalt	41.2	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Copper	1660	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Iron	129000	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Lead	222	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Magnesium	6250	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Manganese	2440	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA7471A	Sediment	Mercury	0.051	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Nickel	11.6	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Potassium	2360	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Selenium	1.6	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Silver	6.07	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Sodium	1330	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Thallium	0.087	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Vanadium	40.7	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA1	2011-04-22	EPA6010B	Sediment	Zinc	10800	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-2.8281	4.341	-0.1235	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Aluminum	10600	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Antimony	43.2	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6020	Sediment	Arsenic	17.2	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Barium	867	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6020	Sediment	Cadmium	3.21	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Calcium	32300	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Chromium	60.2	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Cobalt	32.7	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Copper	1100	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Iron	88000	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Lead	195	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Magnesium	7090	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Manganese	1570	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA7471A	Sediment	Mercury	0.088	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Nickel	9.79	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Potassium	1820	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Selenium	1.2	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Silver	3.32	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Sodium	945	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Thallium	0.158	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Vanadium	30.4	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA2	2011-04-22	EPA6010B	Sediment	Zinc	6840	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.3689	3.2092	-0.2658	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Aluminum	10300	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Antimony	40.8	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6020	Sediment	Arsenic	14.2	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Barium	825	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6020	Sediment	Cadmium	1.66	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Calcium	31400	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Chromium	58.6	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Cobalt	31.9	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Copper	1080	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Iron	87800	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Lead	176	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Magnesium	7180	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Manganese	1550	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA7471A	Sediment	Mercury	0.184	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Nickel	9.3	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Potassium	1800	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Selenium	1.1	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Silver	3.55	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Sodium	908	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Thallium	0.181	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Vanadium	30.5	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMA	CR-DMA3	2011-04-22	EPA6010B	Sediment	Zinc	6530	TRUE	mg/kg	97.88566954	1.967501958	226.1900024	444969	5420918	OU 1 North	-3.2661	3.2033	-0.1736	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Aluminum	17800	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Antimony	74.7	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6020	Sediment	Arsenic	22.2	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Barium	1540	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Beryllium	0.58	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6020	Sediment	Cadmium	1.4	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Calcium	51600	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Chromium	104	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Cobalt	51.2	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Copper	2200	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Iron	184000	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Lead	204	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Magnesium	6160	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Manganese	3200	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA7471A	Sediment	Mercury	0.048	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Nickel	11.6	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Potassium	3070	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Selenium	2	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Silver	5.99	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Sodium	1870	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Thallium	0.088	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Vanadium	45	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB1	2011-04-22	EPA6010B	Sediment	Zinc	14500	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.6933	5.0625	0.1829	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Aluminum	17800	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Antimony	70.1	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6020	Sediment	Arsenic	18.7	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Barium	1520	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Beryllium	0.56	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6020	Sediment	Cadmium	1.23	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Calcium	52500	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Chromium	105	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Cobalt	47.8	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Copper	2160	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Iron	185000	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Lead	199	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Magnesium	6330	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Manganese	3100	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA7471A	Sediment	Mercury	0.114	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Nickel	11.6	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Potassium	3110	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Selenium	1.9	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Silver	4.6	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Thallium	0.089	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Vanadium	43.6	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB2	2011-04-22	EPA6010B	Sediment	Zinc	13300	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-2.8665	4.7876	0.2464	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Aluminum	15400	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Antimony	55.2	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6020	Sediment	Arsenic	17.3	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Barium	1180	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Beryllium	0.41	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6020	Sediment	Cadmium	1.93	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Calcium	44900	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Chromium	78.8	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Cobalt	28.5	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Copper	1680	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Iron	147000	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Lead	227	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Magnesium	6860	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Manganese	2390	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA7471A	Sediment	Mercury	0.093	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Potassium	2590	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Selenium	1.8	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Silver	2.95	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Sodium	1240	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Thallium	0.14	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Vanadium	37.9	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMB	CR-DMB3	2011-04-22	EPA6010B	Sediment	Zinc	11400	TRUE	mg/kg	97.88566954	1.967501958	171.6100006	445035	5420944	OU 1 North	-3.3049	3.9327	-0.0595	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Aluminum	19200	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Antimony	76.6	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6020	Sediment	Arsenic	22.5	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Barium	1710	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Beryllium	0.65	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6020	Sediment	Cadmium	1.42	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Calcium	56400	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Chromium	113	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Cobalt	54	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Copper	2410	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Iron	178000	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Lead	228	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Magnesium	6590	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Manganese	3550	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA7471A	Sediment	Mercury	0.036	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Nickel	12	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Potassium	3360	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Selenium	2.3	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Silver	5.39	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Sodium	2060	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Thallium	0.073	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Vanadium	47.8	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC1	2011-04-22	EPA6010B	Sediment	Zinc	16000	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6616	5.1824	0.1791	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Aluminum	19700	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Antimony	77.7	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6020	Sediment	Arsenic	27.6	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Barium	1820	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Beryllium	0.71	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6020	Sediment	Cadmium	1.35	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Calcium	58600	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Chromium	116	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Cobalt	59.7	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Copper	2520	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Iron	206000	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Lead	242	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Magnesium	6460	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Manganese	3680	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA7471A	Sediment	Mercury	0.034	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Potassium	3540	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Selenium	2.3	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Silver	4.97	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Sodium	2170	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Thallium	0.072	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Vanadium	48.8	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC2	2011-04-22	EPA6010B	Sediment	Zinc	17400	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6015	5.3745	0.1347	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Aluminum	16500	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Antimony	64.6	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6020	Sediment	Arsenic	19.3	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Barium	1440	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Beryllium	0.54	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6020	Sediment	Cadmium	1.71	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Calcium	49100	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Chromium	97.2	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Cobalt	48.7	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Copper	1960	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Iron	154000	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Lead	180	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Magnesium	5970	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Manganese	2930	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA7471A	Sediment	Mercury	0.04	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Potassium	2900	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Selenium	1.8	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Silver	4.97	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Sodium	1710	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Thallium	0.094	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Vanadium	43.7	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMC	CR-DMC3	2011-04-22	EPA6010B	Sediment	Zinc	12500	TRUE	mg/kg	97.88566954	1.967501958	198.3600006	445011	5420956	OU 1 North	-2.6677	4.8282	0.1964	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Aluminum	11800	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Antimony	74.4	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6020	Sediment	Arsenic	14	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Barium	900	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6020	Sediment	Cadmium	1.69	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Calcium	34400	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Chromium	64	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Cobalt	32.9	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Copper	1250	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Iron	93200	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Lead	181	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Magnesium	7100	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Manganese	1900	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA7471A	Sediment	Mercury	0.053	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Nickel	9.76	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Potassium	2000	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Selenium	1.4	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Silver	11.3	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Sodium	1060	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Thallium	0.096	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Vanadium	32.1	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD1	2011-04-22	EPA6010B	Sediment	Zinc	8630	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9811	3.8054	-0.0522	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Aluminum	9520	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Antimony	40.7	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6020	Sediment	Arsenic	11.3	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Barium	680	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6020	Sediment	Cadmium	1.27	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Calcium	27100	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Chromium	49.7	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Cobalt	25	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Copper	910	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Iron	72800	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Lead	138	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Magnesium	6140	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Manganese	1330	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA7471A	Sediment	Mercury	0.06	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Nickel	8.05	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Potassium	1590	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Selenium	1	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Silver	3.83	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Sodium	726	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Thallium	0.089	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Vanadium	28.1	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD2	2011-04-22	EPA6010B	Sediment	Zinc	6230	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-2.9194	3.4292	-0.1738	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Aluminum	10500	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Antimony	40.6	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6020	Sediment	Arsenic	10.3	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Barium	692	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6020	Sediment	Cadmium	2.72	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Calcium	31200	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Chromium	49.1	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Cobalt	16.7	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Copper	852	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Iron	77700	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Lead	190	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Magnesium	8550	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Manganese	1200	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA7471A	Sediment	Mercury	0.437	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Nickel	10.7	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Potassium	1610	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Selenium	1.4	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Silver	2.03	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Sodium	497	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Thallium	0.233	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Vanadium	28.8	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DMD	CR-DMD3	2011-04-22	EPA6010B	Sediment	Zinc	6190	TRUE	mg/kg	97.88566954	1.967501958	214.4900055	444981	5420918	OU 1 North	-3.9074	1.6957	-0.2889	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Aluminum	12500	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Antimony	63.6	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6020	Sediment	Arsenic	17.7	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Barium	1030	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6020	Sediment	Cadmium	1.47	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Calcium	36800	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Chromium	71	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Cobalt	38.1	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Copper	1410	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Iron	104000	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Lead	231	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Magnesium	6310	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Manganese	2120	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA7471A	Sediment	Mercury	0.054	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Potassium	2150	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Selenium	1.5	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Silver	5.09	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Sodium	1190	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Thallium	0.106	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Vanadium	36.7	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME1	2011-04-22	EPA6010B	Sediment	Zinc	9450	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-2.9928	4.1199	-0.0898	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Aluminum	9260	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Antimony	45.3	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6020	Sediment	Arsenic	11.1	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Barium	717	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6020	Sediment	Cadmium	2.1	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Calcium	31400	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Chromium	48.3	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Cobalt	25.6	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Copper	922	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Iron	66500	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Lead	177	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Magnesium	9100	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Manganese	1240	TRUE	mg/kg	97.88566954	1.967501958	219.8999994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA7471A	Sediment	Mercury	0.097	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Nickel	9.43	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Potassium	1540	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Selenium	0.8	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Silver	3.42	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Sodium	740	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Thallium	0.115	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Vanadium	28	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME2	2011-04-22	EPA6010B	Sediment	Zinc	5520	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3225	2.7016	-0.4458	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Aluminum	8250	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Antimony	40.9	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6020	Sediment	Arsenic	14.3	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Barium	671	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6020	Sediment	Cadmium	2.03	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Calcium	27300	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Chromium	44.4	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Cobalt	24.9	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Copper	807	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Iron	66200	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Lead	156	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Magnesium	7640	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Manganese	1140	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA7471A	Sediment	Mercury	0.14	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Nickel	8.45	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Potassium	1450	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Selenium	1	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Silver	4.39	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Sodium	679	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Thallium	0.139	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Vanadium	25.2	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DME	CR-DME3	2011-04-22	EPA6010B	Sediment	Zinc	5080	TRUE	mg/kg	97.88566954	1.967501958	219.8899994	444975	5420916	OU 1 North	-3.3825	2.6323	-0.5214	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Aluminum	13900	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Antimony	14.1	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6020	Sediment	Arsenic	7.76	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Barium	804	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6020	Sediment	Cadmium	2.51	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Calcium	43000	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6020	Sediment	Chromium	38.3	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Cobalt	13.9	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Copper	734	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Iron	121000	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Lead	273	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Magnesium	8570	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Manganese	2200	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA7471A	Sediment	Mercury	0.148	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Nickel	8.51	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Potassium	2450	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Selenium	2.1	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Silver	1.31	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Sodium	774	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Thallium	0.11	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6020	Sediment	Vanadium	26.3	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA1	2010-04-29	EPA6010B	Sediment	Zinc	10300	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8924	2.6651	-0.0615	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Aluminum	13750	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Antimony	9.21	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6020	Sediment	Arsenic	7.195	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Barium	647	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Beryllium	0.485	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6020	Sediment	Cadmium	3.005	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Calcium	42650	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6020	Sediment	Chromium	35.8	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Cobalt	12.3	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Copper	631.5	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Iron	114000	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Lead	304	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Magnesium	9070	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Manganese	2120	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA7471A	Sediment	Mercury	0.0935	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Nickel	8.045	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Potassium	2485	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Selenium	2.15	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Silver	0.9985	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Sodium	765	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Thallium	0.1275	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6020	Sediment	Vanadium	28.65	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA2-1	2010-04-29	EPA6010B	Sediment	Zinc	10020	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.7632	2.4645	-0.0121	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Aluminum	15600	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Antimony	12.3	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6020	Sediment	Arsenic	13.6	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Barium	453	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Beryllium	0.46	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6020	Sediment	Cadmium	2.93	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Calcium	41600	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6020	Sediment	Chromium	23.4	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Cobalt	18.8	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Copper	708	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Iron	105000	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Lead	727	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Magnesium	9840	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Manganese	1820	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA7471A	Sediment	Mercury	0.11	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Nickel	8.94	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Potassium	3540	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Selenium	1.8	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Silver	1.63	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Sodium	1460	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Thallium	0.101	FALSE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6020	Sediment	Vanadium	30.6	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSA	CR-DSA3	2010-04-29	EPA6010B	Sediment	Zinc	11400	TRUE	mg/kg	98.15785532	1.77724527	-74.9700012	436961	5413660	OU 1 North	-3.8201	2.0744	-0.0436	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Aluminum	15500	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Antimony	80.8	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6020	Sediment	Arsenic	19.3	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Barium	1730	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Beryllium	0.79	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6020	Sediment	Cadmium	2.31	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Calcium	54800	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6020	Sediment	Chromium	88.4	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Cobalt	42.9	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Copper	2120	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Iron	147000	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Lead	251	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Magnesium	6440	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Manganese	3100	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA7471A	Sediment	Mercury	0.167	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Nickel	16	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Potassium	2850	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Selenium	1.7	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Silver	6.86	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Sodium	1690	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Thallium	0.358	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6020	Sediment	Vanadium	26.5	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB1	2010-04-29	EPA6010B	Sediment	Zinc	11800	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.6416	4.0905	0.1823	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Aluminum	14900	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Antimony	52.8	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6020	Sediment	Arsenic	15.7	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Barium	1370	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Beryllium	0.65	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6020	Sediment	Cadmium	2.94	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Calcium	49900	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6020	Sediment	Chromium	73.2	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Cobalt	24.3	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Copper	1580	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Iron	139000	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Lead	236	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Magnesium	6580	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Manganese	2470	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA7471A	Sediment	Mercury	0.173	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Nickel	14	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Potassium	2620	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Selenium	1.9	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Silver	2.91	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Sodium	1100	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Thallium	0.288	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6020	Sediment	Vanadium	27.6	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB2	2010-04-29	EPA6010B	Sediment	Zinc	11100	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.8483	3.3328	0.0284	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Aluminum	16800	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Antimony	45.6	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6020	Sediment	Arsenic	13	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Barium	1400	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Beryllium	0.6	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6020	Sediment	Cadmium	2.41	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Calcium	54400	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6020	Sediment	Chromium	75.8	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Cobalt	20.7	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Copper	1470	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Iron	160000	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Lead	232	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Magnesium	7200	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Manganese	2420	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA7471A	Sediment	Mercury	0.235	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Nickel	12.1	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Potassium	2690	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Selenium	2.3	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Silver	1.87	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Sodium	925	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Thallium	0.202	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6020	Sediment	Vanadium	27	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSB	CR-DSB3	2010-04-29	EPA6010B	Sediment	Zinc	11600	TRUE	mg/kg	98.15785532	1.77724527	-72.6500015	436977	5413668	OU 1 North	-3.891	3.3018	-0.0701	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Aluminum	15100	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Antimony	50	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6020	Sediment	Arsenic	12.4	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Barium	1320	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Beryllium	0.64	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6020	Sediment	Cadmium	2.26	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Calcium	55300	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6020	Sediment	Chromium	68.7	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Cobalt	30	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Copper	1440	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Iron	141000	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Lead	222	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Magnesium	8570	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Manganese	2500	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA7471A	Sediment	Mercury	0.075	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Nickel	11.8	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Potassium	2580	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Selenium	1.7	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Silver	2.29	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Sodium	1090	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Thallium	0.125	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6020	Sediment	Vanadium	26.2	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC1	2010-04-29	EPA6010B	Sediment	Zinc	11100	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.4317	3.8108	-0.1171	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Aluminum	15200	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Antimony	41.1	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6020	Sediment	Arsenic	14	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Barium	1330	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Beryllium	0.62	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6020	Sediment	Cadmium	2.66	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Calcium	50900	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6020	Sediment	Chromium	70.2	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Cobalt	23.6	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Copper	1400	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Iron	144000	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Lead	259	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Magnesium	7090	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Manganese	2280	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA7471A	Sediment	Mercury	0.136	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Nickel	12.8	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Potassium	2520	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Selenium	2	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Silver	2.14	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Sodium	931	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Thallium	0.23	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6020	Sediment	Vanadium	26.5	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC2	2010-04-29	EPA6010B	Sediment	Zinc	11000	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.7948	3.3433	-0.0513	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Aluminum	13000	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Antimony	21.5	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6020	Sediment	Arsenic	8.82	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Barium	880	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Beryllium	0.48	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6020	Sediment	Cadmium	2.98	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Calcium	43300	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6020	Sediment	Chromium	51.3	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Cobalt	14.3	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Copper	894	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Iron	117000	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Lead	235	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Magnesium	8230	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Manganese	1800	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA7471A	Sediment	Mercury	0.183	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Nickel	10.6	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Potassium	2130	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Selenium	2	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Silver	1.33	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Sodium	650	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Thallium	0.217	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6020	Sediment	Vanadium	22.7	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSC	CR-DSC3	2010-04-29	EPA6010B	Sediment	Zinc	8830	TRUE	mg/kg	98.15785532	1.77724527	-73.75	436985	5413670	OU 1 North	-3.9784	2.4903	-0.1207	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Aluminum	11300	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Antimony	9.03	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6020	Sediment	Arsenic	6.96	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Barium	554	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Beryllium	0.42	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6020	Sediment	Cadmium	2.74	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Calcium	37900	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6020	Sediment	Chromium	29	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Cobalt	11.6	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Copper	555	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Iron	86600	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Lead	279	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Magnesium	9730	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Manganese	1630	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA7471A	Sediment	Mercury	0.092	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Nickel	8.79	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Potassium	1930	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Selenium	1.4	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Silver	1.09	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Sodium	590	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Thallium	0.112	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6020	Sediment	Vanadium	21.5	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD1	2010-04-29	EPA6010B	Sediment	Zinc	7840	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.8443	2.0637	-0.2751	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Aluminum	10500	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Antimony	9.26	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6020	Sediment	Arsenic	6.76	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Barium	495	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6020	Sediment	Cadmium	2.99	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Calcium	35900	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6020	Sediment	Chromium	23.4	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Cobalt	10.8	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Copper	481	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Iron	75800	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Lead	281	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Magnesium	9880	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Manganese	1380	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA7471A	Sediment	Mercury	0.094	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Nickel	9	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Potassium	1840	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Selenium	1.1	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Silver	1.11	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Sodium	589	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Thallium	0.153	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6020	Sediment	Vanadium	20.7	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD2	2010-04-29	EPA6010B	Sediment	Zinc	6830	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-3.9095	1.719	-0.3965	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Aluminum	9170	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Antimony	5.35	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6020	Sediment	Arsenic	8.47	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Barium	190	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6020	Sediment	Cadmium	3	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Calcium	33300	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6020	Sediment	Chromium	11	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Cobalt	10.2	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Copper	328	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Iron	52600	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Lead	455	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Magnesium	9130	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Manganese	1010	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA7471A	Sediment	Mercury	0.147	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Nickel	8.12	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Potassium	1890	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Selenium	0.69	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Silver	0.846	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Sodium	770	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Thallium	0.093	FALSE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6020	Sediment	Vanadium	19.3	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSD	CR-DSD3	2010-04-29	EPA6010B	Sediment	Zinc	6260	TRUE	mg/kg	98.15785532	1.77724527	-84.2699966	436997	5413664	OU 1 North	-4.0217	0.6788	-0.4277	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Aluminum	9110	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Antimony	9.97	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6020	Sediment	Arsenic	6.39	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Barium	501	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6020	Sediment	Cadmium	3.59	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Calcium	39000	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6020	Sediment	Chromium	20	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Cobalt	10	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Copper	447	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Iron	67300	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Lead	335	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Magnesium	11900	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Manganese	1290	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA7471A	Sediment	Mercury	0.122	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Nickel	9.01	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Potassium	1460	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Selenium	0.76	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Silver	1.14	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Sodium	483	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Thallium	0.125	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6020	Sediment	Vanadium	18.6	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE1	2010-04-29	EPA6010B	Sediment	Zinc	6420	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.3681	1.2764	-0.6967	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Aluminum	8280	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Antimony	6.92	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6020	Sediment	Arsenic	4.86	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Barium	399	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6020	Sediment	Cadmium	2.93	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Calcium	34400	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6020	Sediment	Chromium	16.3	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Cobalt	8	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Copper	340	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Iron	53700	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Lead	248	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Magnesium	10700	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Manganese	1070	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA7471A	Sediment	Mercury	0.111	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Nickel	7.93	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Potassium	1380	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Selenium	0.69	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Silver	0.732	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Sodium	411	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6020	Sediment	Vanadium	16.5	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE2	2010-04-29	EPA6010B	Sediment	Zinc	5050	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	-4.1748	1.0668	-0.7067	1
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Aluminum	4490	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Antimony	0.339	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6020	Sediment	Arsenic	1.77	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Barium	57	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Beryllium	0.14	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6020	Sediment	Cadmium	0.222	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Calcium	7240	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6020	Sediment	Chromium	9.11	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Cobalt	3.3	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Copper	17.1	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Iron	10800	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Lead	11	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Magnesium	5530	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Manganese	165	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA7471A	Sediment	Mercury	0.014	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Nickel	9.37	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Potassium	687	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Selenium	0.05	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Silver	0.074	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Sodium	141	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Thallium	0.054	FALSE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6020	Sediment	Vanadium	11.3	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-DSE	CR-DSE3	2010-04-29	EPA6010B	Sediment	Zinc	156	TRUE	mg/kg	98.15785532	1.77724527	-73.0699997	437017	5413682	OU 1 North	0.9022	-0.1436	-0.7949	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Aluminum	4920	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Antimony	0.107	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6020	Sediment	Arsenic	1.78	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Barium	52.3	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6020	Sediment	Cadmium	1.02	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Calcium	3950	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6020	Sediment	Chromium	9.01	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Cobalt	4.13	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Copper	8.1	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Iron	10900	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6020	Sediment	Lead	5.04	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Magnesium	3220	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Manganese	165	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Nickel	9.13	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Potassium	810	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Silver	0.042	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Sodium	139	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Thallium	0.111	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6020	Sediment	Vanadium	12.7	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA1	2011-04-29	EPA6010B	Sediment	Zinc	31.9	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.2765	-0.2123	0.1358	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Aluminum	4560	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Antimony	0.099	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6020	Sediment	Arsenic	1.62	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Barium	45.1	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6020	Sediment	Cadmium	0.188	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Calcium	3060	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6020	Sediment	Chromium	8.21	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Cobalt	3.5	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Copper	6.8	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Iron	10200	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6020	Sediment	Lead	4.84	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Magnesium	3020	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Manganese	154	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Nickel	8.66	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Potassium	706	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Silver	0.033	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Sodium	124	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Thallium	0.127	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6020	Sediment	Vanadium	11.2	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA2	2011-04-29	EPA6010B	Sediment	Zinc	35.7	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.8129	0.3526	0.038	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Aluminum	4890	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Antimony	0.119	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6020	Sediment	Arsenic	1.58	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Barium	48.2	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6020	Sediment	Cadmium	0.311	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Calcium	3610	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Cobalt	3.91	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Copper	7.3	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Iron	10900	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6020	Sediment	Lead	6.99	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Magnesium	3170	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Manganese	141	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Nickel	9.16	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Potassium	764	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Silver	0.039	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Sodium	136	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Thallium	0.129	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6020	Sediment	Vanadium	11.8	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENA	CR-ENA3	2011-04-29	EPA6010B	Sediment	Zinc	49.6	TRUE	mg/kg	91.07570827	8.380635233	-411.8099976	405269	5321289	OU 2 Middle Laucustrine CSM Unit	2.1557	-0.2172	0.2311	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Aluminum	4210	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Antimony	0.085	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6020	Sediment	Arsenic	1.5	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Barium	40.5	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6020	Sediment	Cadmium	0.135	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Calcium	2670	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6020	Sediment	Chromium	7.55	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Cobalt	3.25	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Copper	6	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Iron	9180	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6020	Sediment	Lead	4.07	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Magnesium	2680	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Manganese	148	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Nickel	7.47	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Potassium	644	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Silver	0.025	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Sodium	113	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Thallium	0.069	FALSE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6020	Sediment	Vanadium	10.8	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB1	2011-04-29	EPA6010B	Sediment	Zinc	28.4	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.1008	0.5534	0.0491	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Aluminum	5880	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Antimony	0.078	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6020	Sediment	Arsenic	1.51	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Barium	59.4	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6020	Sediment	Cadmium	0.261	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Calcium	2010	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6020	Sediment	Chromium	7.64	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Cobalt	3.55	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Copper	7.1	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Iron	10200	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6020	Sediment	Lead	9.88	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Magnesium	2650	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Manganese	122	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Nickel	7.59	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Potassium	742	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Silver	0.027	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Sodium	120	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Thallium	0.11	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6020	Sediment	Vanadium	10.9	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB2	2011-04-29	EPA6010B	Sediment	Zinc	44.1	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	1.9668	-0.2824	0.6628	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Aluminum	7590	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Antimony	0.105	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6020	Sediment	Arsenic	1.64	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Barium	69.5	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6020	Sediment	Cadmium	0.068	FALSE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Calcium	1800	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6020	Sediment	Chromium	7.79	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Cobalt	4.16	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Copper	8.7	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Iron	11500	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6020	Sediment	Lead	4.1	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Magnesium	2700	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Manganese	150	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Nickel	7.66	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Potassium	1020	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Silver	0.032	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Sodium	164	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Thallium	0.07	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6020	Sediment	Vanadium	11.6	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENB	CR-ENB3	2011-04-29	EPA6010B	Sediment	Zinc	25.7	TRUE	mg/kg	91.07570827	8.380635233	-420.3800049	405419	5321349	OU 2 Middle Laucustrine CSM Unit	3.5623	1.0185	0.49	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Aluminum	3905	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Antimony	0.084	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6020	Sediment	Arsenic	1.325	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Barium	37.2	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Beryllium	0.195	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6020	Sediment	Cadmium	0.104	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Calcium	1535	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6020	Sediment	Chromium	6.6	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Cobalt	2.985	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Copper	5.6	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Iron	8500	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6020	Sediment	Lead	3.065	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Magnesium	2295	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Manganese	132.5	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA7471A	Sediment	Mercury	0.0025	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Nickel	6.31	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Potassium	594.5	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Silver	0.0235	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Sodium	106	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Thallium	0.041	FALSE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6020	Sediment	Vanadium	9.975	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC1-1	2011-04-29	EPA6010B	Sediment	Zinc	23.5	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.3925	0.6809	0.5141	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Aluminum	4130	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Antimony	0.077	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6020	Sediment	Arsenic	1.26	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Barium	33.5	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6020	Sediment	Cadmium	0.104	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Calcium	1490	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6020	Sediment	Chromium	6.6	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Cobalt	3.11	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Copper	5.7	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Iron	9440	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6020	Sediment	Lead	3.01	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Magnesium	2300	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Manganese	136	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Nickel	6.51	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Potassium	579	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Silver	0.025	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Sodium	100	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Thallium	0.038	FALSE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6020	Sediment	Vanadium	9.85	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC2	2011-04-29	EPA6010B	Sediment	Zinc	23.8	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.448	0.6687	0.6586	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Aluminum	4050	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Antimony	0.077	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6020	Sediment	Arsenic	1.39	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Barium	35	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6020	Sediment	Cadmium	0.085	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Calcium	1440	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6020	Sediment	Chromium	7.3	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Cobalt	3.15	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Copper	5.9	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Iron	9620	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6020	Sediment	Lead	3.16	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Magnesium	2440	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Manganese	145	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Nickel	7.02	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Potassium	660	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Silver	0.021	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Sodium	113	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Thallium	0.04	FALSE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6020	Sediment	Vanadium	10.8	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-ENC	CR-ENC3	2011-04-29	EPA6010B	Sediment	Zinc	22.5	TRUE	mg/kg	91.07570827	8.380635233	-413.25	405519	5321429	OU 2 Middle Laucustrine CSM Unit	3.7555	0.9244	0.5859	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Aluminum	3780	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Antimony	0.076	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6020	Sediment	Arsenic	1.31	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Barium	37.4	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Beryllium	0.16	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6020	Sediment	Cadmium	0.124	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Calcium	1400	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6020	Sediment	Chromium	7.55	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Cobalt	3.04	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Copper	5.4	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Iron	8760	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6020	Sediment	Lead	3.89	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Magnesium	2200	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Manganese	117	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Nickel	6.17	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Potassium	578	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Silver	0.018	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Sodium	106	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Thallium	0.065	FALSE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6020	Sediment	Vanadium	10.3	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END1	2011-04-29	EPA6010B	Sediment	Zinc	25.6	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.1822	0.5632	0.6595	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Aluminum	4340	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Antimony	0.097	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6020	Sediment	Arsenic	1.72	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Barium	41.5	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6020	Sediment	Cadmium	0.14	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Calcium	1480	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6020	Sediment	Chromium	7.99	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Cobalt	3.27	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Copper	6.5	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Iron	11300	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6020	Sediment	Lead	4.38	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Magnesium	2560	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Manganese	133	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Nickel	7.38	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Potassium	686	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Silver	0.029	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Sodium	104	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Thallium	0.076	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6020	Sediment	Vanadium	11.3	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END2	2011-04-29	EPA6010B	Sediment	Zinc	30.4	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	3.2185	0.5596	0.58	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Aluminum	7160	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Antimony	0.125	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6020	Sediment	Arsenic	2.18	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Barium	76.5	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6020	Sediment	Cadmium	0.235	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Calcium	2030	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6020	Sediment	Chromium	11.4	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Cobalt	4.97	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Copper	10.7	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Iron	13400	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6020	Sediment	Lead	7.4	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Magnesium	4170	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Manganese	214	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Nickel	11.9	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Potassium	1280	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Silver	0.044	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Sodium	170	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Thallium	0.13	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6020	Sediment	Vanadium	15.4	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-END	CR-END3	2011-04-29	EPA6010B	Sediment	Zinc	47.9	TRUE	mg/kg	91.07570827	8.380635233	-382.8099976	405519	5321469	OU 2 Middle Laucustrine CSM Unit	2.7628	0.0756	0.733	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Aluminum	5940	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Antimony	0.109	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6020	Sediment	Arsenic	1.72	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Barium	60.5	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6020	Sediment	Cadmium	0.171	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Calcium	2100	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6020	Sediment	Chromium	9.96	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Cobalt	4.42	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Copper	8.7	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Iron	11900	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6020	Sediment	Lead	5.87	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Magnesium	3270	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Manganese	226	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Nickel	9.92	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Potassium	974	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Silver	0.035	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Sodium	139	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Thallium	0.108	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6020	Sediment	Vanadium	13.4	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE1	2011-04-29	EPA6010B	Sediment	Zinc	38.3	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	3.0531	0.5818	0.6867	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Aluminum	5060	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Antimony	0.094	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6020	Sediment	Arsenic	1.73	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Barium	50.6	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6020	Sediment	Cadmium	0.252	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Calcium	1630	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6020	Sediment	Chromium	9.26	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Cobalt	3.64	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Copper	7.3	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Iron	10600	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6020	Sediment	Lead	8.27	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Magnesium	2700	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Manganese	149	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Nickel	8.37	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Potassium	793	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Silver	0.022	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Sodium	120	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Thallium	0.114	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6020	Sediment	Vanadium	12.5	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE2	2011-04-29	EPA6010B	Sediment	Zinc	45	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	2.393	-0.0992	0.9157	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Aluminum	4350	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Antimony	0.081	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6020	Sediment	Arsenic	1.41	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Barium	43.9	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6020	Sediment	Cadmium	0.376	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Calcium	1260	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6020	Sediment	Chromium	6.81	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Cobalt	3.15	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Copper	5.7	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Iron	8730	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6020	Sediment	Lead	13.1	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Magnesium	2300	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Manganese	118	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Nickel	6.2	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Potassium	686	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Silver	0.019	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Sodium	97	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Thallium	0.106	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6020	Sediment	Vanadium	9.81	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-ENE	CR-ENE3	2011-04-29	EPA6010B	Sediment	Zinc	56.1	TRUE	mg/kg	91.07570827	8.380635233	-375.3599854	405519	5321479	OU 2 Middle Laucustrine CSM Unit	1.5706	-0.6166	1.1787	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Aluminum	13850	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Antimony	1.15	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6020	Sediment	Arsenic	3.96	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Barium	208.5	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Beryllium	0.485	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6020	Sediment	Cadmium	5.055	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Calcium	4480	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6020	Sediment	Chromium	24.05	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Cobalt	6.1	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Copper	73.7	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Iron	18150	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Lead	249.5	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Magnesium	6000	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Manganese	202	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA7471A	Sediment	Mercury	0.8425	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Nickel	15.5	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Potassium	1890	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Selenium	0.7	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Silver	1.092	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Sodium	184.5	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Thallium	0.958	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6020	Sediment	Vanadium	28.15	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA1-1	2011-04-22	EPA6010B	Sediment	Zinc	635	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	-2.4552	-3.0617	1.6158	2
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Aluminum	5600	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Antimony	0.04	FALSE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6020	Sediment	Arsenic	1.45	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Barium	52.6	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6020	Sediment	Cadmium	0.106	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Calcium	2630	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6020	Sediment	Chromium	9.96	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Cobalt	3.93	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Copper	10.9	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Iron	12100	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6020	Sediment	Lead	5.33	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Magnesium	3230	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Manganese	167	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Nickel	10.1	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Potassium	1110	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Silver	0.077	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Sodium	107	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Thallium	0.07	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6020	Sediment	Vanadium	15.5	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA2	2011-04-22	EPA6010B	Sediment	Zinc	38.8	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.182	0.5132	0.3758	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Aluminum	4290	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Antimony	0.027	FALSE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6020	Sediment	Arsenic	1.27	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Barium	40.7	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Beryllium	0.12	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6020	Sediment	Cadmium	0.093	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Calcium	2290	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6020	Sediment	Chromium	9.28	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Cobalt	3.75	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Copper	8.8	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Iron	12300	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6020	Sediment	Lead	3.48	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Magnesium	2870	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Manganese	153	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Nickel	9.16	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Potassium	865	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Silver	0.056	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Sodium	87	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Thallium	0.053	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6020	Sediment	Vanadium	14.9	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-EVA	CR-EVA3	2011-04-22	EPA6010B	Sediment	Zinc	28.8	TRUE	mg/kg	62.86063819	36.2830054	-542.2600098	424997	5394314	OU 1 South	3.6046	0.8667	0.2798	3
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Aluminum	10600	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Antimony	1.52	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6020	Sediment	Arsenic	4.81	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Barium	288	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Beryllium	0.44	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6020	Sediment	Cadmium	6.59	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Calcium	5930	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6020	Sediment	Chromium	21.1	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Cobalt	5.01	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Copper	86.9	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Iron	15700	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Lead	351	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Magnesium	6720	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Manganese	166	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA7471A	Sediment	Mercury	1.16	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Nickel	13.9	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Potassium	1280	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Selenium	0.8	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Silver	1.26	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Sodium	139	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Thallium	0.858	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6020	Sediment	Vanadium	23.2	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB1	2011-04-22	EPA6010B	Sediment	Zinc	864	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-3.6853	-3.4553	0.8407	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Aluminum	9330	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Antimony	1.68	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6020	Sediment	Arsenic	13.2	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Barium	673	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6020	Sediment	Cadmium	11.3	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Calcium	25000	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6020	Sediment	Chromium	18.5	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Cobalt	4.91	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Copper	61.2	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Iron	18800	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Lead	666	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Magnesium	15800	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Manganese	303	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA7471A	Sediment	Mercury	1.89	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Nickel	14.2	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Potassium	1310	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Silver	0.909	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Sodium	134	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Thallium	0.606	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6020	Sediment	Vanadium	26.6	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB2	2011-04-22	EPA6010B	Sediment	Zinc	1340	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-4.8741	-3.7818	-1.7081	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Aluminum	9150	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Antimony	0.709	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6020	Sediment	Arsenic	4.92	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Barium	113	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6020	Sediment	Cadmium	3.15	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Calcium	5910	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6020	Sediment	Chromium	11.7	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Cobalt	4.57	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Copper	26.6	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Iron	14000	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Lead	184	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Magnesium	5010	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Manganese	218	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA7471A	Sediment	Mercury	0.455	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Nickel	10.9	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Potassium	1470	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Silver	0.226	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Sodium	126	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Thallium	0.185	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6020	Sediment	Vanadium	18.6	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVB	CR-EVB3	2011-04-22	EPA6010B	Sediment	Zinc	341	TRUE	mg/kg	62.86063819	36.2830054	-497.519989	424947	5394344	OU 1 South	-1.9919	-2.9697	0.5278	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Aluminum	12500	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Antimony	1.72	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6020	Sediment	Arsenic	13.2	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Barium	518	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Beryllium	0.5	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6020	Sediment	Cadmium	12.7	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Calcium	19000	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6020	Sediment	Chromium	22.6	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Cobalt	5.81	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Copper	73	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Iron	19300	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Lead	814	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Magnesium	17200	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Manganese	280	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA7471A	Sediment	Mercury	1.96	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Nickel	15.7	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Potassium	1970	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Silver	1.01	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Sodium	184	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Thallium	0.662	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6020	Sediment	Vanadium	30.4	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC1	2011-04-22	EPA6010B	Sediment	Zinc	1470	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	-4.424	-4.0632	-0.9382	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Aluminum	8260	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Antimony	0.184	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6020	Sediment	Arsenic	2.39	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Barium	79.8	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6020	Sediment	Cadmium	0.684	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Calcium	3000	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6020	Sediment	Chromium	13	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Cobalt	4.68	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Copper	12.8	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Iron	13400	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Lead	25	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Magnesium	3700	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Manganese	129	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA7471A	Sediment	Mercury	0.082	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Nickel	11.2	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Potassium	1690	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Silver	0.06	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Sodium	98	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Thallium	0.112	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6020	Sediment	Vanadium	18.4	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC2	2011-04-22	EPA6010B	Sediment	Zinc	74	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	1.0806	-1.7948	0.8608	2
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Aluminum	8010	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Antimony	0.06	FALSE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6020	Sediment	Arsenic	1.69	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Barium	72.7	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6020	Sediment	Cadmium	0.155	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Calcium	2720	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6020	Sediment	Chromium	12.8	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Cobalt	4.61	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Copper	11.8	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Iron	13000	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6020	Sediment	Lead	6.53	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Magnesium	3620	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Manganese	170	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Nickel	11.2	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Potassium	1600	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Silver	0.062	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Sodium	117	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Thallium	0.097	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6020	Sediment	Vanadium	18.7	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVC	CR-EVC3	2011-04-22	EPA6010B	Sediment	Zinc	42.5	TRUE	mg/kg	62.86063819	36.2830054	-623.9899902	425077	5394164	OU 1 South	3.4083	0.442	0.5284	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Aluminum	4680	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Antimony	0.081	FALSE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6020	Sediment	Arsenic	1.71	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Barium	38.6	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Beryllium	0.1	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6020	Sediment	Cadmium	0.281	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Calcium	1860	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6020	Sediment	Chromium	7.29	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Cobalt	2.66	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Copper	6.9	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Iron	9190	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6020	Sediment	Lead	16.8	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Magnesium	2440	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Manganese	98.3	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Nickel	6.73	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Potassium	570	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Silver	0.051	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Sodium	86	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Thallium	0.152	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6020	Sediment	Vanadium	12.9	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD1	2011-04-22	EPA6010B	Sediment	Zinc	69.7	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	1.3998	-0.7411	0.4945	3
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Aluminum	4470	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Antimony	0.097	FALSE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6020	Sediment	Arsenic	1.5	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Barium	42.8	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Beryllium	0.13	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6020	Sediment	Cadmium	0.473	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Calcium	1600	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6020	Sediment	Chromium	7.41	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Cobalt	2.74	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Copper	8.2	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Iron	8930	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6020	Sediment	Lead	25.5	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Magnesium	2330	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Manganese	88.3	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA7471A	Sediment	Mercury	0.023	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Nickel	6.47	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Potassium	680	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Silver	0.051	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Sodium	59	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Thallium	0.192	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6020	Sediment	Vanadium	11.7	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD2	2011-04-22	EPA6010B	Sediment	Zinc	92.4	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	0.5909	-1.4701	1.0039	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Aluminum	5220	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Antimony	0.136	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6020	Sediment	Arsenic	1.95	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Barium	70	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6020	Sediment	Cadmium	1.17	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Calcium	1970	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6020	Sediment	Chromium	7.94	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Cobalt	2.83	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Copper	8.5	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Iron	9420	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6020	Sediment	Lead	60.2	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Magnesium	2370	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Manganese	101	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA7471A	Sediment	Mercury	0.057	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Nickel	7.24	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Potassium	778	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Silver	0.061	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Sodium	69	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Thallium	0.226	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6020	Sediment	Vanadium	11.8	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVD	CR-EVD3	2011-04-22	EPA6010B	Sediment	Zinc	145	TRUE	mg/kg	62.86063819	36.2830054	-639.2700195	425097	5394214	OU 1 South	-0.6724	-2.1048	0.9725	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Aluminum	14700	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Antimony	1.91	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6020	Sediment	Arsenic	7.09	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Barium	428	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Beryllium	0.62	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6020	Sediment	Cadmium	11.1	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Calcium	16600	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6020	Sediment	Chromium	28.9	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Cobalt	6.89	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Copper	122	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Iron	21100	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Lead	466	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Magnesium	14800	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Manganese	248	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA7471A	Sediment	Mercury	1.62	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Nickel	17.6	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Potassium	2160	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Selenium	1.9	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Silver	1.79	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Sodium	222	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Thallium	0.791	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6020	Sediment	Vanadium	32.1	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE1	2011-04-22	EPA6010B	Sediment	Zinc	1170	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.7956	-3.6426	-0.0394	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Aluminum	11300	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Antimony	1.65	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6020	Sediment	Arsenic	9.91	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Barium	373	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Beryllium	0.41	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6020	Sediment	Cadmium	9.81	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Calcium	17500	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6020	Sediment	Chromium	20.3	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Cobalt	5.51	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Copper	54.3	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Lead	542	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Magnesium	14800	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Manganese	215	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA7471A	Sediment	Mercury	1.38	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Nickel	14.6	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Potassium	1870	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Selenium	1.1	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Silver	0.736	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Sodium	160	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Thallium	0.473	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6020	Sediment	Vanadium	27.6	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE2	2011-04-22	EPA6010B	Sediment	Zinc	1030	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	-3.8482	-3.9734	-0.874	2
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Aluminum	7170	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Antimony	0.233	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6020	Sediment	Arsenic	2.77	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Barium	93.7	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6020	Sediment	Cadmium	0.791	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Calcium	2770	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6020	Sediment	Chromium	11.2	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Cobalt	4.73	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Copper	10.7	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Iron	12900	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6020	Sediment	Lead	7.62	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Magnesium	3630	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Manganese	161	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Nickel	10.6	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Potassium	1400	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Silver	0.052	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Sodium	78	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Thallium	0.094	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6020	Sediment	Vanadium	17.6	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-EVE	CR-EVE3	2011-04-22	EPA6010B	Sediment	Zinc	53.2	TRUE	mg/kg	62.86063819	36.2830054	-627.4899902	425087	5394104	OU 1 South	2.1688	-0.649	0.2495	3
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Aluminum	9060	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Antimony	5.08	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6020	Sediment	Arsenic	7.79	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Barium	354	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Beryllium	0.44	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6020	Sediment	Cadmium	4.49	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Calcium	25800	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6020	Sediment	Chromium	21.7	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Cobalt	8.24	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Copper	161	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Iron	22600	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Lead	213	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Magnesium	15900	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Manganese	356	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA7471A	Sediment	Mercury	0.46	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Nickel	15.9	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Potassium	1510	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Selenium	0.8	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Silver	2.04	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Sodium	159	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Thallium	0.439	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6020	Sediment	Vanadium	25.6	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA1	2011-04-23	EPA6010B	Sediment	Zinc	1370	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-3.328	-2.1872	-1.0192	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Aluminum	6190	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Antimony	3.03	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6020	Sediment	Arsenic	8.02	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Barium	405	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6020	Sediment	Cadmium	7.55	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Calcium	48700	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6020	Sediment	Chromium	15.6	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Cobalt	5.49	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Copper	137	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Iron	31600	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Lead	379	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Magnesium	25500	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Manganese	511	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA7471A	Sediment	Mercury	0.443	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Nickel	12.1	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Potassium	1020	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Selenium	0.8	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Silver	1.01	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Sodium	157	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Thallium	0.263	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6020	Sediment	Vanadium	21.9	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA2	2011-04-23	EPA6010B	Sediment	Zinc	2780	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.7596	-2.0195	-2.213	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Aluminum	7520	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Antimony	4.35	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6020	Sediment	Arsenic	7.71	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Barium	380	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6020	Sediment	Cadmium	4.27	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Calcium	29100	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6020	Sediment	Chromium	18.4	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Cobalt	5.86	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Copper	235	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Iron	40000	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Lead	296	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Magnesium	13700	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Manganese	778	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA7471A	Sediment	Mercury	0.404	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Nickel	10.1	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Potassium	1280	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Selenium	1	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Silver	0.62	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Sodium	258	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Thallium	0.233	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6020	Sediment	Vanadium	20.9	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCA	CR-FCA3	2011-04-23	EPA6010B	Sediment	Zinc	4100	TRUE	mg/kg	69.6199541	30.36316997	195.9600067	428541	5407803	OU 1 South	-4.4525	-0.712	-1.0125	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Aluminum	7910	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Antimony	6.66	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6020	Sediment	Arsenic	10.2	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Barium	316	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6020	Sediment	Cadmium	4.7	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Calcium	32000	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6020	Sediment	Chromium	22	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Cobalt	9.23	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Copper	196	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Iron	25400	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Lead	226	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Magnesium	18400	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Manganese	437	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA7471A	Sediment	Mercury	0.468	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Nickel	15.1	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Potassium	1410	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Selenium	0.6	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Silver	1.54	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Sodium	160	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Thallium	0.386	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6020	Sediment	Vanadium	24	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB1	2011-04-23	EPA6010B	Sediment	Zinc	1780	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-3.5217	-1.9308	-1.3339	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Aluminum	9710	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Antimony	14.2	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6020	Sediment	Arsenic	17	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Barium	427	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6020	Sediment	Cadmium	7.63	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Calcium	21800	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6020	Sediment	Chromium	31.7	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Cobalt	11.9	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Copper	443	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Iron	35600	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Lead	451	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Magnesium	13200	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Manganese	535	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA7471A	Sediment	Mercury	0.796	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Nickel	18.1	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Potassium	1480	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Selenium	1.8	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Silver	2.36	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Sodium	179	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Thallium	0.857	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6020	Sediment	Vanadium	25.5	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB2	2011-04-23	EPA6010B	Sediment	Zinc	2920	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-4.2799	-1.7128	-0.4537	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Aluminum	6540	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Antimony	3.75	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6020	Sediment	Arsenic	11.6	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Barium	304	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6020	Sediment	Cadmium	11.2	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Calcium	47400	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6020	Sediment	Chromium	17.2	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Cobalt	5.89	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Copper	173	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Iron	31200	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Lead	492	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Magnesium	23600	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Manganese	465	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA7471A	Sediment	Mercury	2.53	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Nickel	12.4	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Potassium	1040	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Selenium	1.4	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Silver	1.19	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Sodium	147	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Thallium	0.458	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6020	Sediment	Vanadium	20.7	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCB	CR-FCB3	2011-04-23	EPA6010B	Sediment	Zinc	3090	TRUE	mg/kg	69.6199541	30.36316997	228.0500031	428511	5407833	OU 1 South	-5.3423	-3.0319	-1.8024	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Aluminum	9940	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Antimony	4.49	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6020	Sediment	Arsenic	6.44	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Barium	365	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Beryllium	0.5	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6020	Sediment	Cadmium	4.59	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Calcium	22900	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6020	Sediment	Chromium	21.2	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Cobalt	8.54	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Copper	143	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Iron	22200	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Lead	231	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Magnesium	16600	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Manganese	334	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA7471A	Sediment	Mercury	0.802	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Nickel	17.8	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Potassium	1660	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Silver	1.63	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Sodium	158	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Thallium	0.402	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6020	Sediment	Vanadium	26.2	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC1	2011-04-23	EPA6010B	Sediment	Zinc	1250	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-3.3373	-2.587	-0.7307	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Aluminum	7830	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Antimony	4.05	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6020	Sediment	Arsenic	10.5	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Barium	467	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6020	Sediment	Cadmium	8.2	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Calcium	43800	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6020	Sediment	Chromium	19.2	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Cobalt	6.59	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Copper	154	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Iron	28200	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Lead	414	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Magnesium	24700	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Manganese	432	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA7471A	Sediment	Mercury	0.715	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Nickel	15.2	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Potassium	1230	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Selenium	1.1	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Silver	1.24	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Sodium	138	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Thallium	0.411	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6020	Sediment	Vanadium	23.8	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC2	2011-04-23	EPA6010B	Sediment	Zinc	2120	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.559	-2.5944	-2	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Aluminum	6980	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Antimony	5.18	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6020	Sediment	Arsenic	9.33	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Barium	409	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6020	Sediment	Cadmium	5.93	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Calcium	37900	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6020	Sediment	Chromium	18.2	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Cobalt	5.68	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Copper	236	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Iron	41200	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Lead	383	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Magnesium	16300	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Manganese	829	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA7471A	Sediment	Mercury	0.366	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Nickel	8.15	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Potassium	1050	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Silver	0.641	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Sodium	249	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Thallium	0.214	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6020	Sediment	Vanadium	20	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCC	CR-FCC3	2011-04-23	EPA6010B	Sediment	Zinc	4190	TRUE	mg/kg	69.6199541	30.36316997	231.2400055	428531	5407838	OU 1 South	-4.886	-0.7579	-1.4367	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Aluminum	9270	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Antimony	15.4	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6020	Sediment	Arsenic	11.8	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Barium	434	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Beryllium	0.46	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6020	Sediment	Cadmium	5.18	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Calcium	28500	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6020	Sediment	Chromium	31.9	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Cobalt	15.2	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Copper	469	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Iron	35700	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Lead	274	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Magnesium	15300	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Manganese	720	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA7471A	Sediment	Mercury	0.426	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Nickel	14.8	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Potassium	1460	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Silver	3.31	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Sodium	236	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Thallium	0.594	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6020	Sediment	Vanadium	24.9	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD1	2011-04-23	EPA6010B	Sediment	Zinc	2870	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-3.7839	-0.7169	-0.5982	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Aluminum	9040	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Antimony	9.59	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Barium	418	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Beryllium	0.43	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6020	Sediment	Cadmium	7.31	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Calcium	28400	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6020	Sediment	Chromium	24.7	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Cobalt	8.12	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Copper	352	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Iron	44300	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Lead	468	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Magnesium	14000	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Manganese	758	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA7471A	Sediment	Mercury	0.927	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Nickel	14	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Potassium	1400	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Selenium	1.8	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Silver	1.53	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Sodium	232	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Thallium	0.468	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6020	Sediment	Vanadium	22.2	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD2	2011-04-23	EPA6010B	Sediment	Zinc	3930	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-4.7513	-1.3319	-0.7562	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Aluminum	6430	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Antimony	4.65	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6020	Sediment	Arsenic	10.1	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Barium	433	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6020	Sediment	Cadmium	9.71	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Calcium	44800	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6020	Sediment	Chromium	13.5	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Cobalt	5.2	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Copper	214	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Iron	33900	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Lead	546	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Magnesium	19400	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Manganese	725	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA7471A	Sediment	Mercury	0.422	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Nickel	7.52	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Potassium	983	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Selenium	0.8	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Silver	0.623	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Sodium	215	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Thallium	0.221	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6020	Sediment	Vanadium	19	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2
2009–2011 Beach Sediment Study	CR-FCD	CR-FCD3	2011-04-23	EPA6010B	Sediment	Zinc	4850	TRUE	mg/kg	69.6199541	30.36316997	238.3500061	428471	5407848	OU 1 South	-5.6182	-1.4485	-1.8905	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Aluminum	8920	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Antimony	5.81	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6020	Sediment	Arsenic	8.58	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Barium	350	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Beryllium	0.43	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6020	Sediment	Cadmium	4.93	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Calcium	29200	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6020	Sediment	Chromium	23.5	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Cobalt	8.87	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Copper	212	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Iron	25700	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Lead	251	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Magnesium	17100	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Manganese	351	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA7471A	Sediment	Mercury	0.364	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Nickel	15.9	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Potassium	1520	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Selenium	0.8	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Silver	1.57	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Sodium	175	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Thallium	0.499	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6020	Sediment	Vanadium	25.4	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE1	2011-04-23	EPA6010B	Sediment	Zinc	1770	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-3.5039	-1.9817	-1.0731	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Aluminum	8960	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Antimony	6.94	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6020	Sediment	Arsenic	14	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Barium	399	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Beryllium	0.45	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6020	Sediment	Cadmium	10.4	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Calcium	24400	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6020	Sediment	Chromium	25.3	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Cobalt	7.19	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Copper	244	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Iron	29500	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Lead	510	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Magnesium	16400	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Manganese	329	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA7471A	Sediment	Mercury	1.39	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Nickel	17.1	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Potassium	1450	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Selenium	1.9	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Silver	1.67	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Sodium	156	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Thallium	0.713	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6020	Sediment	Vanadium	25.3	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE2	2011-04-23	EPA6010B	Sediment	Zinc	2460	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.6829	-2.9617	-0.9375	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Aluminum	6820	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Antimony	3.61	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6020	Sediment	Arsenic	10.8	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Barium	120	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6020	Sediment	Cadmium	7.36	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Calcium	37000	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6020	Sediment	Chromium	10.2	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Cobalt	5.07	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Copper	129	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Iron	22500	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Lead	487	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Magnesium	15800	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Manganese	395	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA7471A	Sediment	Mercury	2.33	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Nickel	8.58	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Potassium	1110	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Selenium	0.7	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Silver	0.476	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Sodium	192	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Thallium	0.232	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6020	Sediment	Vanadium	18.4	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-FCE	CR-FCE3	2011-04-23	EPA6010B	Sediment	Zinc	2660	TRUE	mg/kg	69.6199541	30.36316997	253.0599976	428501	5407858	OU 1 South	-4.9115	-3.237	-1.336	2
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Aluminum	8780	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Antimony	0.264	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6020	Sediment	Arsenic	9.01	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Barium	69.4	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6020	Sediment	Cadmium	0.11	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Calcium	17300	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6020	Sediment	Chromium	9.6	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Cobalt	5.64	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Copper	13.3	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Iron	18600	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6020	Sediment	Lead	10.1	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Magnesium	7670	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Manganese	349	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Nickel	8.68	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Potassium	1840	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Silver	0.065	FALSE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Sodium	106	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Thallium	0.126	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6020	Sediment	Vanadium	17.3	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA1	2011-05-04	EPA6010B	Sediment	Zinc	42.3	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.1464	0.4204	-2.1623	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Aluminum	9580	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Antimony	0.261	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6020	Sediment	Arsenic	7.83	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Barium	85.4	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Beryllium	0.4	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6020	Sediment	Cadmium	0.115	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Calcium	15000	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6020	Sediment	Chromium	10	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Cobalt	6.66	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Iron	20000	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6020	Sediment	Lead	8.23	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Magnesium	7680	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Manganese	382	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Nickel	9.8	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Potassium	2020	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Silver	0.065	FALSE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Sodium	126	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Thallium	0.129	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6020	Sediment	Vanadium	16.8	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA2	2011-05-04	EPA6010B	Sediment	Zinc	43.6	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.5899	1.0698	-1.9567	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Aluminum	9050	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Antimony	0.266	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6020	Sediment	Arsenic	6.95	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Barium	81.3	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6020	Sediment	Cadmium	0.107	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Calcium	16300	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6020	Sediment	Chromium	9.36	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Cobalt	5.37	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Copper	12.6	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Iron	20300	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6020	Sediment	Lead	6.75	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Magnesium	7900	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Manganese	356	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Nickel	8.88	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Potassium	1840	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Silver	0.059	FALSE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Sodium	115	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Thallium	0.108	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6020	Sediment	Vanadium	14.5	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCA	CR-HCA3	2011-05-04	EPA6010B	Sediment	Zinc	44.2	TRUE	mg/kg	84.71367097	13.32340285	-716.3699951	397625	5297951	OU 2 Middle Laucustrine CSM Unit	3.4941	1.0716	-2.1894	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Aluminum	8960	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Antimony	0.288	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6020	Sediment	Arsenic	7.47	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Barium	70.3	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6020	Sediment	Cadmium	0.094	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Calcium	17000	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6020	Sediment	Chromium	8.01	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Cobalt	5.72	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Copper	12.4	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Iron	19800	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6020	Sediment	Lead	6.9	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Magnesium	7670	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Manganese	345	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Nickel	8.6	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Potassium	1880	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Silver	0.063	FALSE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Sodium	121	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Thallium	0.093	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6020	Sediment	Vanadium	13.1	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB1	2011-05-04	EPA6010B	Sediment	Zinc	43.2	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.5414	1.1022	-2.2691	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Aluminum	9100	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Antimony	0.275	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6020	Sediment	Arsenic	8.49	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Barium	89.7	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6020	Sediment	Cadmium	0.113	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Calcium	16200	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6020	Sediment	Chromium	9.64	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Cobalt	7.39	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Copper	13.3	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Iron	19800	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6020	Sediment	Lead	8.6	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Magnesium	7940	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Manganese	375	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Nickel	9.58	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Potassium	1950	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Silver	0.062	FALSE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Sodium	105	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Thallium	0.108	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6020	Sediment	Vanadium	15	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB2	2011-05-04	EPA6010B	Sediment	Zinc	43.9	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.4937	1.1001	-2.1833	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Aluminum	9630	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Antimony	0.336	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6020	Sediment	Arsenic	8.42	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Barium	98.4	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Beryllium	0.42	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6020	Sediment	Cadmium	0.115	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Calcium	18900	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6020	Sediment	Chromium	9.67	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Cobalt	7.12	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Copper	15.8	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Iron	22300	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6020	Sediment	Lead	9.45	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Magnesium	8270	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Manganese	364	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Nickel	10.7	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Potassium	2010	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Silver	0.065	FALSE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Sodium	147	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Thallium	0.125	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6020	Sediment	Vanadium	16.7	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCB	CR-HCB3	2011-05-04	EPA6010B	Sediment	Zinc	50.7	TRUE	mg/kg	84.71367097	13.32340285	-687.6500244	397625	5297981	OU 2 Middle Laucustrine CSM Unit	3.1727	0.9281	-2.1651	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Aluminum	8630	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Antimony	0.387	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6020	Sediment	Arsenic	7.07	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Barium	77.8	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6020	Sediment	Cadmium	0.106	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Calcium	15500	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6020	Sediment	Chromium	8.38	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Cobalt	5.42	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Copper	12.4	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Iron	19300	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6020	Sediment	Lead	7.45	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Magnesium	7450	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Manganese	330	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Nickel	8.91	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Potassium	1760	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Silver	0.066	FALSE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Sodium	139	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Thallium	0.116	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6020	Sediment	Vanadium	15.2	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC1	2011-05-04	EPA6010B	Sediment	Zinc	40.2	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.26	0.8159	-2.1524	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Aluminum	10400	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Antimony	0.252	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6020	Sediment	Arsenic	7.67	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Barium	98.8	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Beryllium	0.42	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6020	Sediment	Cadmium	0.118	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Calcium	16600	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6020	Sediment	Chromium	10.6	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Cobalt	7.22	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Copper	15.6	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Iron	23300	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6020	Sediment	Lead	9.88	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Magnesium	8200	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Manganese	418	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Nickel	10.7	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Potassium	2180	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Silver	0.062	FALSE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Sodium	162	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Thallium	0.125	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6020	Sediment	Vanadium	16.5	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC2	2011-05-04	EPA6010B	Sediment	Zinc	51.7	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.3406	1.1742	-1.9008	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Aluminum	27000	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Antimony	0.34	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6020	Sediment	Arsenic	8.16	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Barium	219	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Beryllium	1.06	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6020	Sediment	Cadmium	0.287	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Calcium	8810	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6020	Sediment	Chromium	42	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Cobalt	17.2	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Copper	42.5	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Iron	44200	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6020	Sediment	Lead	19.7	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Magnesium	16100	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Manganese	601	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Nickel	44.2	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Potassium	4600	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Silver	0.105	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Sodium	302	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Thallium	0.236	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6020	Sediment	Vanadium	47.4	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCC	CR-HCC3	2011-05-04	EPA6010B	Sediment	Zinc	117	TRUE	mg/kg	84.71367097	13.32340285	-595.1300049	397745	5298131	OU 2 Middle Laucustrine CSM Unit	3.802	0.4417	0.1852	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Aluminum	9660	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Antimony	0.296	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6020	Sediment	Arsenic	7.55	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Barium	94.9	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6020	Sediment	Cadmium	0.105	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Calcium	19100	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6020	Sediment	Chromium	8.7	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Cobalt	6.11	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Iron	20400	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6020	Sediment	Lead	7.74	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Magnesium	7750	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Manganese	358	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Nickel	9.3	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Potassium	2040	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Silver	0.066	FALSE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Sodium	141	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Thallium	0.11	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6020	Sediment	Vanadium	14.6	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD1	2011-05-04	EPA6010B	Sediment	Zinc	45	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2676	1.0707	-2.3575	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Aluminum	9510	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Antimony	0.297	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6020	Sediment	Arsenic	7	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Barium	87.2	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6020	Sediment	Cadmium	0.107	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Calcium	18800	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6020	Sediment	Chromium	9.48	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Cobalt	5.87	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Copper	13.1	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Iron	21300	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6020	Sediment	Lead	7.4	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Magnesium	8070	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Manganese	354	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Nickel	9.94	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Potassium	1980	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Silver	0.056	FALSE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Sodium	158	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Thallium	0.125	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6020	Sediment	Vanadium	15.2	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD2	2011-05-04	EPA6010B	Sediment	Zinc	45.5	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.3112	0.9486	-2.2037	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Aluminum	9120	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Antimony	0.304	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6020	Sediment	Arsenic	7.54	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Barium	81.9	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6020	Sediment	Cadmium	0.141	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Calcium	15700	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6020	Sediment	Chromium	9.46	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Cobalt	5.97	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Copper	13.9	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Iron	19600	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6020	Sediment	Lead	8.07	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Magnesium	7330	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Manganese	398	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Potassium	1800	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Silver	0.068	FALSE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Sodium	126	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Thallium	0.135	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6020	Sediment	Vanadium	16.2	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCD	CR-HCD3	2011-05-04	EPA6010B	Sediment	Zinc	46.4	TRUE	mg/kg	84.71367097	13.32340285	-591.2000122	397805	5298171	OU 2 Middle Laucustrine CSM Unit	3.2481	0.8627	-1.9863	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Aluminum	8490	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Antimony	0.268	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6020	Sediment	Arsenic	7.29	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Barium	86.8	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6020	Sediment	Cadmium	0.12	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Calcium	16800	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6020	Sediment	Chromium	9.57	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Cobalt	6.93	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Copper	15	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Iron	19200	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6020	Sediment	Lead	8.96	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Magnesium	7450	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Manganese	369	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Nickel	9.33	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Potassium	1790	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Silver	0.071	FALSE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Sodium	126	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Thallium	0.117	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6020	Sediment	Vanadium	13.8	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE1	2011-05-04	EPA6010B	Sediment	Zinc	45.8	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	2.9135	0.7762	-2.0083	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Aluminum	10600	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Antimony	0.273	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6020	Sediment	Arsenic	8.64	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Barium	106	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Beryllium	0.42	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6020	Sediment	Cadmium	0.128	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Calcium	17800	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6020	Sediment	Chromium	11	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Cobalt	7.55	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Copper	18.5	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Iron	22600	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6020	Sediment	Lead	10.8	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Magnesium	7960	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Manganese	408	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Nickel	11.1	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Potassium	2140	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Silver	0.072	FALSE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Sodium	191	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Thallium	0.144	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6020	Sediment	Vanadium	18.2	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE2	2011-05-04	EPA6010B	Sediment	Zinc	52.5	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0318	0.9407	-1.9132	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Aluminum	9960	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Antimony	0.261	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6020	Sediment	Arsenic	8.88	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Barium	100	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Beryllium	0.4	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6020	Sediment	Cadmium	0.153	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Calcium	18500	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6020	Sediment	Chromium	9.31	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Cobalt	8.22	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Copper	17.2	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Iron	23000	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6020	Sediment	Lead	10.6	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Magnesium	7720	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Manganese	439	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Nickel	10.6	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Potassium	2200	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Silver	0.072	FALSE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Sodium	149	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Thallium	0.128	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6020	Sediment	Vanadium	18.6	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HCE	CR-HCE3	2011-05-04	EPA6010B	Sediment	Zinc	52.1	TRUE	mg/kg	84.71367097	13.32340285	-520.5200195	397825	5298271	OU 2 Middle Laucustrine CSM Unit	3.0292	0.9065	-1.9812	3
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Aluminum	12700	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Antimony	0.532	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6020	Sediment	Arsenic	4.7	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Barium	146	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Beryllium	0.48	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6020	Sediment	Cadmium	4.57	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Calcium	3110	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6020	Sediment	Chromium	17.4	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Cobalt	7.31	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Copper	28.1	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Iron	18500	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6020	Sediment	Lead	230	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Magnesium	4990	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Manganese	358	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA7471A	Sediment	Mercury	0.339	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Nickel	17.9	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Silver	0.217	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Sodium	146	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Thallium	0.53	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6020	Sediment	Vanadium	21	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA1	2011-05-05	EPA6010B	Sediment	Zinc	374	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-1.3863	-2.606	1.848	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Aluminum	14200	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Antimony	0.803	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6020	Sediment	Arsenic	6.37	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Barium	164	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Beryllium	0.55	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6020	Sediment	Cadmium	7.08	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Calcium	3330	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6020	Sediment	Chromium	16.1	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Cobalt	7.09	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Copper	34.6	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6020	Sediment	Lead	327	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Magnesium	4730	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Manganese	380	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA7471A	Sediment	Mercury	0.531	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Nickel	16.9	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Potassium	1980	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Silver	0.254	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Sodium	153	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Thallium	0.517	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6020	Sediment	Vanadium	20.7	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA2	2011-05-05	EPA6010B	Sediment	Zinc	504	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-2.1082	-2.9491	1.8128	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Aluminum	16500	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Antimony	0.628	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6020	Sediment	Arsenic	4.46	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Barium	178	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Beryllium	0.54	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6020	Sediment	Cadmium	2.31	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Calcium	3080	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6020	Sediment	Chromium	13.9	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Cobalt	6.63	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Copper	24.3	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Iron	17100	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6020	Sediment	Lead	63.7	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Magnesium	3620	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Manganese	363	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA7471A	Sediment	Mercury	0.1	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Nickel	13.9	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Potassium	1940	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Silver	0.134	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Sodium	155	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Thallium	0.208	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6020	Sediment	Vanadium	19.3	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTA	CR-HTA3	2011-05-05	EPA6010B	Sediment	Zinc	164	TRUE	mg/kg	43.39914249	50.17947951	-717.4500122	408210	5331283	OU 2 Upper Laucustrine CSM Unit	-0.1306	-1.5416	1.406	2
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Aluminum	13500	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Antimony	0.228	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6020	Sediment	Arsenic	3.24	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Barium	138	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Beryllium	0.45	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6020	Sediment	Cadmium	0.621	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Calcium	2990	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6020	Sediment	Chromium	16.7	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Cobalt	7.15	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Copper	19.3	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Iron	17800	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6020	Sediment	Lead	32.9	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Magnesium	4690	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Manganese	271	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA7471A	Sediment	Mercury	0.052	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Nickel	16.8	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Potassium	2130	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Silver	0.122	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Sodium	147	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Thallium	0.384	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6020	Sediment	Vanadium	20.3	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB1	2011-05-05	EPA6010B	Sediment	Zinc	127	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	1.2934	-0.9679	1.1792	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Aluminum	14100	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Antimony	0.174	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6020	Sediment	Arsenic	2.47	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Barium	142	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Beryllium	0.46	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6020	Sediment	Cadmium	0.158	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Calcium	2590	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6020	Sediment	Chromium	14.3	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Cobalt	6.17	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Copper	15.2	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Iron	15900	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6020	Sediment	Lead	9.73	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Magnesium	3710	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Manganese	185	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Nickel	13.3	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Potassium	2200	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Silver	0.078	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Sodium	144	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Thallium	0.143	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6020	Sediment	Vanadium	19.4	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB2	2011-05-05	EPA6010B	Sediment	Zinc	48.2	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.0173	0.1297	0.7582	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Aluminum	13100	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Antimony	0.255	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6020	Sediment	Arsenic	3.62	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Barium	136	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Beryllium	0.5	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6020	Sediment	Cadmium	0.16	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Calcium	3450	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6020	Sediment	Chromium	22.8	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Cobalt	9.3	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Copper	22.4	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Iron	21900	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6020	Sediment	Lead	11.3	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Magnesium	6050	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Manganese	321	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Nickel	23	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Potassium	2820	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Silver	0.062	FALSE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Sodium	118	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Thallium	0.156	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6020	Sediment	Vanadium	26.8	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTB	CR-HTB3	2011-05-05	EPA6010B	Sediment	Zinc	59.6	TRUE	mg/kg	43.39914249	50.17947951	-671.8400269	408450	5331353	OU 2 Upper Laucustrine CSM Unit	3.5203	0.2764	0.6688	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Aluminum	10000	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Antimony	0.202	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6020	Sediment	Arsenic	3.5	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Barium	115	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6020	Sediment	Cadmium	0.34	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Calcium	3200	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6020	Sediment	Chromium	18.5	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Cobalt	8.57	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Copper	18.5	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Iron	18700	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6020	Sediment	Lead	14.1	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Magnesium	5080	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Manganese	349	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA7471A	Sediment	Mercury	0.015	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Nickel	20.1	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Potassium	1930	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Silver	0.081	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Sodium	114	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Thallium	0.258	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6020	Sediment	Vanadium	22.9	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC1	2011-05-05	EPA6010B	Sediment	Zinc	74	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	2.6407	-0.0407	0.7776	3
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Aluminum	9860	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Antimony	0.226	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6020	Sediment	Arsenic	2.98	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Barium	121	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6020	Sediment	Cadmium	1.29	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Calcium	2830	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6020	Sediment	Chromium	15.6	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Cobalt	7.47	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Copper	17.6	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Iron	16500	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6020	Sediment	Lead	45.7	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Magnesium	4260	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Manganese	311	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA7471A	Sediment	Mercury	0.08	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Nickel	16.4	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Potassium	2000	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Silver	0.103	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Sodium	112	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Thallium	0.372	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6020	Sediment	Vanadium	19.6	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC2	2011-05-05	EPA6010B	Sediment	Zinc	166	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	0.5529	-1.3997	1.455	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Aluminum	10300	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Antimony	0.41	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6020	Sediment	Arsenic	3.34	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Barium	136	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6020	Sediment	Cadmium	3.12	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Calcium	2600	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6020	Sediment	Chromium	13.6	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Cobalt	6.55	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Copper	19.8	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Iron	15800	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6020	Sediment	Lead	149	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Magnesium	3920	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Manganese	344	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA7471A	Sediment	Mercury	0.201	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Nickel	14.6	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Potassium	2150	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Silver	0.137	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Sodium	119	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Thallium	0.472	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6020	Sediment	Vanadium	16.7	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTC	CR-HTC3	2011-05-05	EPA6010B	Sediment	Zinc	296	TRUE	mg/kg	43.39914249	50.17947951	-698.710022	408620	5331383	OU 2 Upper Laucustrine CSM Unit	-1.0463	-2.1741	1.8091	2
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Aluminum	12100	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Antimony	0.194	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6020	Sediment	Arsenic	2.79	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Barium	129	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Beryllium	0.43	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6020	Sediment	Cadmium	0.271	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Calcium	3220	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6020	Sediment	Chromium	17.9	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Cobalt	7.71	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Copper	18.9	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Iron	18100	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6020	Sediment	Lead	12	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Magnesium	5010	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Manganese	280	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA7471A	Sediment	Mercury	0.014	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Nickel	18.4	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Potassium	2500	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Silver	0.085	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Sodium	124	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Thallium	0.184	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6020	Sediment	Vanadium	22.1	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD1	2011-05-05	EPA6010B	Sediment	Zinc	68.4	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	2.8171	-0.0662	0.8015	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Aluminum	12700	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Antimony	0.215	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6020	Sediment	Arsenic	3.29	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Barium	145	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6020	Sediment	Cadmium	0.19	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Calcium	3280	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6020	Sediment	Chromium	21.2	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Cobalt	8.23	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Copper	22.6	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Iron	20800	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6020	Sediment	Lead	10.8	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Magnesium	5430	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Manganese	333	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Nickel	21.6	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Potassium	3200	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Silver	0.092	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Sodium	115	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Thallium	0.151	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6020	Sediment	Vanadium	26.5	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD2	2011-05-05	EPA6010B	Sediment	Zinc	61.7	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.3337	0.2234	0.7416	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Aluminum	12800	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Antimony	0.235	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6020	Sediment	Arsenic	3.6	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Barium	128.5	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Beryllium	0.47	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6020	Sediment	Cadmium	0.1415	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Calcium	3540	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6020	Sediment	Chromium	20.9	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Cobalt	7.93	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Copper	22.55	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Iron	21300	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6020	Sediment	Lead	8.455	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Magnesium	5530	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Manganese	342.5	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Nickel	22.35	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Potassium	2880	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Silver	0.08	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Sodium	126.5	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Thallium	0.132	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6020	Sediment	Vanadium	25.3	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTD	CR-HTD3-1	2011-05-05	EPA6010B	Sediment	Zinc	56.55	TRUE	mg/kg	43.39914249	50.17947951	-709.8800049	408570	5331353	OU 2 Upper Laucustrine CSM Unit	3.6228	0.4425	0.5349	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Aluminum	8750	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Antimony	0.273	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6020	Sediment	Arsenic	3.82	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Barium	95.7	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6020	Sediment	Cadmium	0.163	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Calcium	13500	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6020	Sediment	Chromium	18.1	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Cobalt	7.33	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Copper	16.8	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Iron	17800	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6020	Sediment	Lead	7.52	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Magnesium	5740	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Manganese	313	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Nickel	19.5	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Potassium	1500	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Silver	0.085	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Sodium	117	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Thallium	0.101	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6020	Sediment	Vanadium	20.4	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE1	2011-05-05	EPA6010B	Sediment	Zinc	50.5	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.2403	0.6802	-1.073	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Aluminum	7960	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Antimony	0.222	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6020	Sediment	Arsenic	4.1	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Barium	93.3	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6020	Sediment	Cadmium	0.165	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Calcium	20700	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6020	Sediment	Chromium	16.7	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Cobalt	6.78	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Copper	16.8	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Iron	16300	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6020	Sediment	Lead	6.68	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Magnesium	6250	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Manganese	286	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Nickel	18	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Potassium	1430	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Silver	0.107	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Sodium	121	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Thallium	0.091	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6020	Sediment	Vanadium	20.7	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE2	2011-05-05	EPA6010B	Sediment	Zinc	47	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0267	0.4402	-1.6409	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Aluminum	11500	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Antimony	0.294	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6020	Sediment	Arsenic	4.73	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Barium	165	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Beryllium	0.43	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6020	Sediment	Cadmium	0.219	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Calcium	29400	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6020	Sediment	Chromium	22.6	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Cobalt	9.07	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Copper	22.5	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6020	Sediment	Lead	9.07	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Magnesium	9170	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Manganese	448	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Nickel	25	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Potassium	2240	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Silver	0.13	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Sodium	191	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Thallium	0.132	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6020	Sediment	Vanadium	27.4	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-HTE	CR-HTE3	2011-05-05	EPA6010B	Sediment	Zinc	62.9	TRUE	mg/kg	43.39914249	50.17947951	-661.039978	408860	5331483	OU 2 Upper Laucustrine CSM Unit	3.0004	0.6254	-1.6919	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Aluminum	6370	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Antimony	0.261	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6020	Sediment	Arsenic	6.02	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Barium	45.8	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6020	Sediment	Cadmium	0.071	FALSE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Calcium	8990	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6020	Sediment	Chromium	8.48	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Cobalt	3.46	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Copper	7.2	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6020	Sediment	Lead	6.46	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Magnesium	5260	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Manganese	242	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Nickel	7.25	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Potassium	1100	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Silver	0.044	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Sodium	94	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Thallium	0.078	FALSE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6020	Sediment	Vanadium	11.5	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA1	2011-05-02	EPA6010B	Sediment	Zinc	28.7	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6647	0.7698	-1.8297	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Aluminum	6600	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Antimony	0.238	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6020	Sediment	Arsenic	5.93	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Barium	45.7	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6020	Sediment	Cadmium	0.083	FALSE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Calcium	8470	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6020	Sediment	Chromium	7.76	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Cobalt	3.85	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Copper	8.1	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Iron	13900	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6020	Sediment	Lead	5.29	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Magnesium	5870	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Manganese	224	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Nickel	8.09	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Potassium	1170	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Silver	0.051	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Sodium	96	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Thallium	0.086	FALSE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6020	Sediment	Vanadium	11.2	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA2	2011-05-02	EPA6010B	Sediment	Zinc	31.4	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.6901	0.6201	-1.8224	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Aluminum	7180	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Antimony	0.197	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6020	Sediment	Arsenic	5.83	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Barium	47.7	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6020	Sediment	Cadmium	0.157	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Calcium	7440	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6020	Sediment	Chromium	9.9	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Cobalt	3.84	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Copper	8.3	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Iron	14900	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6020	Sediment	Lead	5.51	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Magnesium	5690	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Manganese	222	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Nickel	8.07	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Potassium	1180	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Sodium	105	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6020	Sediment	Vanadium	13.4	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBA	CR-JBA3	2011-05-02	EPA6010B	Sediment	Zinc	40	TRUE	mg/kg	95.42661428	2.921325677	-714.0100098	381390	5309214	OU 2 Lower Laucustrine CSM Unit	3.421	0.2796	-1.366	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Aluminum	6570	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Antimony	0.218	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6020	Sediment	Arsenic	5.98	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Barium	52.9	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6020	Sediment	Cadmium	0.068	FALSE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Calcium	7310	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6020	Sediment	Chromium	7.7	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Cobalt	3.69	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Copper	7.9	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Iron	13400	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6020	Sediment	Lead	5.34	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Magnesium	5410	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Manganese	239	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Nickel	7.27	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Potassium	1130	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Silver	0.035	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Sodium	87	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Thallium	0.071	FALSE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6020	Sediment	Vanadium	10.2	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB1	2011-05-02	EPA6010B	Sediment	Zinc	29.6	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5278	0.6725	-1.7804	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Aluminum	7020	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Antimony	0.186	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6020	Sediment	Arsenic	8.96	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Barium	52.4	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6020	Sediment	Cadmium	0.108	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Calcium	7400	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6020	Sediment	Chromium	7.63	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Cobalt	3.48	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Copper	8.2	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6020	Sediment	Lead	5.8	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Magnesium	5760	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Manganese	259	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Nickel	7.25	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Potassium	1310	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Silver	0.036	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Sodium	77	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Thallium	0.091	FALSE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6020	Sediment	Vanadium	11.1	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB2	2011-05-02	EPA6010B	Sediment	Zinc	33.8	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.5111	0.4586	-1.936	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Aluminum	7110	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Antimony	0.233	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6020	Sediment	Arsenic	6.45	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Barium	57.8	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6020	Sediment	Cadmium	0.115	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Calcium	7620	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6020	Sediment	Chromium	8.01	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Cobalt	3.72	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Copper	8.8	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Iron	14300	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6020	Sediment	Lead	5.51	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Magnesium	5400	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Manganese	240	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Nickel	7.22	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Potassium	1150	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Silver	0.036	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Sodium	78	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Thallium	0.101	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6020	Sediment	Vanadium	10.9	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBB	CR-JBB3	2011-05-02	EPA6010B	Sediment	Zinc	35.5	TRUE	mg/kg	95.42661428	2.921325677	-732.5900269	381390	5309194	OU 2 Lower Laucustrine CSM Unit	3.3536	0.5899	-1.7348	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Aluminum	7350	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Antimony	0.192	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6020	Sediment	Arsenic	6.45	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Barium	46.8	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6020	Sediment	Cadmium	0.066	FALSE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Calcium	9880	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6020	Sediment	Chromium	7.52	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Cobalt	4.01	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Copper	7.9	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Iron	15300	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6020	Sediment	Lead	5.29	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Magnesium	5900	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Manganese	260	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Nickel	7.34	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Potassium	1400	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Silver	0.039	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Sodium	96	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Thallium	0.072	FALSE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6020	Sediment	Vanadium	10.2	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC1	2011-05-02	EPA6010B	Sediment	Zinc	30.4	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7394	0.7353	-1.9469	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Aluminum	7410	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Antimony	0.189	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6020	Sediment	Arsenic	6.79	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Barium	56.8	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6020	Sediment	Cadmium	0.077	FALSE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Calcium	10900	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6020	Sediment	Chromium	10.1	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Cobalt	4.42	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Copper	9.5	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Iron	14600	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6020	Sediment	Lead	5.77	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Magnesium	5900	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Manganese	269	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Nickel	8.63	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Potassium	1540	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Silver	0.046	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Sodium	113	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Thallium	0.088	FALSE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6020	Sediment	Vanadium	13	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC2	2011-05-02	EPA6010B	Sediment	Zinc	34.1	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.7053	0.7402	-1.8671	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Aluminum	7940	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Antimony	0.21	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6020	Sediment	Arsenic	7.52	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Barium	57.9	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6020	Sediment	Cadmium	0.074	FALSE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Calcium	12000	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6020	Sediment	Chromium	9.21	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Cobalt	4.37	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Copper	10.3	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Iron	15000	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6020	Sediment	Lead	6.12	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Magnesium	6540	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Manganese	275	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Nickel	9.79	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Potassium	1590	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Silver	0.051	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Sodium	127	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Thallium	0.093	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6020	Sediment	Vanadium	12.8	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBC	CR-JBC3	2011-05-02	EPA6010B	Sediment	Zinc	34.3	TRUE	mg/kg	95.42661428	2.921325677	-748.8599854	381290	5309144	OU 2 Lower Laucustrine CSM Unit	3.6105	0.5644	-2.0204	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Aluminum	7050	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Antimony	0.186	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6020	Sediment	Arsenic	5.69	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Barium	53.2	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6020	Sediment	Cadmium	0.084	FALSE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Calcium	7580	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6020	Sediment	Chromium	9.02	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Cobalt	4.36	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Copper	8.6	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Iron	14200	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6020	Sediment	Lead	5.12	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Magnesium	5730	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Manganese	250	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Nickel	8.53	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Potassium	1300	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Silver	0.046	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Sodium	109	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Thallium	0.079	FALSE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6020	Sediment	Vanadium	12	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD1	2011-05-02	EPA6010B	Sediment	Zinc	33.9	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.689	0.6828	-1.5287	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Aluminum	7020	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Antimony	0.195	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6020	Sediment	Arsenic	5.99	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Barium	49.6	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6020	Sediment	Cadmium	0.207	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Calcium	6550	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6020	Sediment	Chromium	8.69	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Cobalt	4.07	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Copper	7.1	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Iron	15800	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6020	Sediment	Lead	6.11	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Magnesium	5750	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Manganese	248	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Nickel	7.8	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Potassium	1380	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Silver	0.035	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Sodium	95	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Thallium	0.103	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6020	Sediment	Vanadium	12.2	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD2	2011-05-02	EPA6010B	Sediment	Zinc	45.2	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.2818	0.2225	-1.2731	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Aluminum	6920	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Antimony	0.184	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6020	Sediment	Arsenic	5.8	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Barium	50	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6020	Sediment	Cadmium	0.231	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Calcium	7530	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6020	Sediment	Chromium	9.14	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Cobalt	3.74	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Copper	7.6	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Iron	14100	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6020	Sediment	Lead	6.02	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Magnesium	5680	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Manganese	251	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Nickel	7.5	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Potassium	1290	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Silver	0.034	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Sodium	119	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Thallium	0.112	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6020	Sediment	Vanadium	11.8	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBD	CR-JBD3	2011-05-02	EPA6010B	Sediment	Zinc	45	TRUE	mg/kg	95.42661428	2.921325677	-707.9400024	381070	5309074	OU 2 Lower Laucustrine CSM Unit	3.0259	0.1365	-1.3466	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Aluminum	6620	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Antimony	0.171	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6020	Sediment	Arsenic	5.42	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Barium	54.7	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6020	Sediment	Cadmium	0.092	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Calcium	10400	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6020	Sediment	Chromium	7.61	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Cobalt	4.15	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Copper	7.8	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Iron	13100	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6020	Sediment	Lead	4.9	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Magnesium	5280	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Manganese	242	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Nickel	7.64	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Potassium	1280	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Silver	0.041	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Sodium	159	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Thallium	0.072	FALSE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6020	Sediment	Vanadium	11.3	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE1	2011-05-02	EPA6010B	Sediment	Zinc	31.9	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.4547	0.8301	-1.9032	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Aluminum	7000	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Antimony	0.415	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6020	Sediment	Arsenic	5.01	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Barium	53.6	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6020	Sediment	Cadmium	0.093	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Calcium	5610	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6020	Sediment	Chromium	8.45	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Cobalt	4.59	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Copper	8.5	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Iron	14300	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6020	Sediment	Lead	5.26	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Magnesium	5130	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Manganese	196	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Nickel	7.97	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Potassium	1420	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Silver	0.048	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Sodium	109	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Thallium	0.084	FALSE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6020	Sediment	Vanadium	12.8	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE2	2011-05-02	EPA6010B	Sediment	Zinc	35.1	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.6019	0.446	-1.1121	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Aluminum	7980	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Antimony	0.214	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6020	Sediment	Arsenic	5.95	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Barium	63.7	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6020	Sediment	Cadmium	0.077	FALSE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Calcium	1750	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6020	Sediment	Chromium	9.83	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Cobalt	5.17	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Copper	10.3	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Iron	14600	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6020	Sediment	Lead	6.48	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Magnesium	4750	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Manganese	247	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Nickel	8.44	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Potassium	1870	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Sodium	104	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Thallium	0.1	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6020	Sediment	Vanadium	14.5	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-JBE	CR-JBE3	2011-05-02	EPA6010B	Sediment	Zinc	34.6	TRUE	mg/kg	95.42661428	2.921325677	-745.2999878	381200	5309124	OU 2 Lower Laucustrine CSM Unit	3.981	0.6038	-0.0002	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Aluminum	8230	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Antimony	0.126	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6020	Sediment	Arsenic	1.72	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Barium	74.4	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6020	Sediment	Cadmium	0.199	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Calcium	2500	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6020	Sediment	Chromium	9.73	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Cobalt	3.95	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Copper	10.6	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Iron	13000	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6020	Sediment	Lead	11.3	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Magnesium	3470	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Manganese	189	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Nickel	7.95	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Potassium	901	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Silver	0.058	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Sodium	137	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Thallium	0.127	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6020	Sediment	Vanadium	19.9	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA1	2011-04-26	EPA6010B	Sediment	Zinc	47.5	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	2.3501	0.0871	0.5621	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Aluminum	8760	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Antimony	0.176	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6020	Sediment	Arsenic	1.65	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Barium	78.6	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6020	Sediment	Cadmium	0.107	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Calcium	2170	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6020	Sediment	Chromium	8.39	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Cobalt	3.73	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Copper	11	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Iron	11500	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6020	Sediment	Lead	4.73	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Magnesium	3050	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Manganese	177	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Nickel	11.3	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Potassium	993	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Silver	0.076	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Sodium	138	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Thallium	0.08	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6020	Sediment	Vanadium	19.7	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA2	2011-04-26	EPA6010B	Sediment	Zinc	30.4	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3539	0.5117	0.3331	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Aluminum	8650	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Antimony	0.088	FALSE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6020	Sediment	Arsenic	1.56	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Barium	77.9	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6020	Sediment	Cadmium	0.1	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Calcium	2470	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6020	Sediment	Chromium	8.58	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Cobalt	3.66	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Copper	12.1	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Iron	12100	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6020	Sediment	Lead	4.17	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Magnesium	3270	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Manganese	175	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Nickel	7.76	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Potassium	992	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Silver	0.068	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Sodium	158	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Thallium	0.069	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6020	Sediment	Vanadium	20.4	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFA	CR-KFA3	2011-04-26	EPA6010B	Sediment	Zinc	29.3	TRUE	mg/kg	83.64098179	3.440297757	-410.6900024	417156	5382555	OU 2 Transitional CSM Unit	3.3368	0.7886	0.1881	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Aluminum	4370	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Antimony	0.064	FALSE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6020	Sediment	Arsenic	1.24	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Barium	33.9	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Beryllium	0.11	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6020	Sediment	Cadmium	0.091	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Calcium	2020	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6020	Sediment	Chromium	6.41	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Cobalt	2.76	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Copper	8	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Iron	8820	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6020	Sediment	Lead	389	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Magnesium	2910	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Manganese	140	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Nickel	6.46	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Potassium	563	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Silver	0.052	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Sodium	99	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Thallium	0.04	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6020	Sediment	Vanadium	14.4	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB1	2011-04-26	EPA6010B	Sediment	Zinc	24.7	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	1.0258	-0.4403	0.8667	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Aluminum	4170	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Antimony	0.057	FALSE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6020	Sediment	Arsenic	1.375	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Barium	38.3	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Beryllium	0.14	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6020	Sediment	Cadmium	0.098	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Calcium	2570	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6020	Sediment	Chromium	7.645	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Cobalt	3.565	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Copper	7.6	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Iron	8805	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6020	Sediment	Lead	2.92	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Magnesium	3045	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Manganese	154	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA7471A	Sediment	Mercury	0.0035	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Nickel	7.12	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Potassium	525.5	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Silver	0.063	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Sodium	108	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Thallium	0.0375	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6020	Sediment	Vanadium	15.25	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB2-1	2011-04-26	EPA6010B	Sediment	Zinc	25.2	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.3906	0.6628	-0.018	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Aluminum	4260	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6020	Sediment	Arsenic	1.41	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Barium	38.8	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Beryllium	0.12	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6020	Sediment	Cadmium	0.103	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Calcium	5430	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6020	Sediment	Chromium	7.99	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Cobalt	2.94	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Copper	8	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Iron	8900	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6020	Sediment	Lead	2.92	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Magnesium	3290	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Manganese	149	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Nickel	7.2	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Potassium	616	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Silver	0.051	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Sodium	113	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Thallium	0.047	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6020	Sediment	Vanadium	15.9	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFB	CR-KFB3	2011-04-26	EPA6010B	Sediment	Zinc	24.9	TRUE	mg/kg	83.64098179	3.440297757	-406.519989	417136	5382610	OU 2 Transitional CSM Unit	3.0713	0.3659	-0.7756	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Aluminum	5720	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Antimony	0.13	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6020	Sediment	Arsenic	1.7	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Barium	48	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Beryllium	0.14	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6020	Sediment	Cadmium	0.159	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Calcium	2060	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6020	Sediment	Chromium	8.91	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Cobalt	3.99	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Copper	13.6	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Iron	14500	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6020	Sediment	Lead	5.11	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Magnesium	3620	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Manganese	177	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Nickel	8.9	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Potassium	629	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Silver	0.06	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Sodium	103	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Thallium	0.076	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6020	Sediment	Vanadium	20.2	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC1	2011-04-26	EPA6010B	Sediment	Zinc	38.4	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	2.9044	0.4545	0.4151	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Aluminum	4960	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Antimony	0.043	FALSE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6020	Sediment	Arsenic	1.81	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Barium	38.7	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Beryllium	0.12	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6020	Sediment	Cadmium	0.11	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Calcium	2540	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6020	Sediment	Chromium	7.55	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Cobalt	2.98	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Copper	10.1	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Iron	9900	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6020	Sediment	Lead	3.51	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Magnesium	3260	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Manganese	167	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Nickel	6.71	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Potassium	605	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Silver	0.055	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Sodium	128	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Thallium	0.045	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6020	Sediment	Vanadium	19.3	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC2	2011-04-26	EPA6010B	Sediment	Zinc	28.1	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.1616	0.4668	-0.1464	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Aluminum	4190	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Antimony	0.099	FALSE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6020	Sediment	Arsenic	1.48	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Barium	33.5	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Beryllium	0.11	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6020	Sediment	Cadmium	0.096	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Calcium	2320	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6020	Sediment	Chromium	8.33	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Cobalt	2.67	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Copper	8.2	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Iron	8810	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Magnesium	2840	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Manganese	136	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Nickel	5.89	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Potassium	537	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Silver	0.053	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Sodium	98	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Thallium	0.042	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6020	Sediment	Vanadium	16.2	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFC	CR-KFC3	2011-04-26	EPA6010B	Sediment	Zinc	22.6	TRUE	mg/kg	83.64098179	3.440297757	-406.9700012	417131	5382645	OU 2 Transitional CSM Unit	3.3484	0.4956	-0.0692	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Aluminum	4470	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Antimony	0.075	FALSE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6020	Sediment	Arsenic	1.68	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Barium	45.8	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Beryllium	0.11	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6020	Sediment	Cadmium	0.123	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Calcium	2220	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6020	Sediment	Chromium	9.11	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Cobalt	3.45	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Copper	9.1	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Iron	11400	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6020	Sediment	Lead	4.97	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Magnesium	2860	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Manganese	142	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Nickel	7.18	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Potassium	504	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Silver	0.049	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Sodium	91	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Thallium	0.057	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6020	Sediment	Vanadium	18.2	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD1	2011-04-26	EPA6010B	Sediment	Zinc	30.3	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.1563	0.8462	0.0327	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Aluminum	5000	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Antimony	0.101	FALSE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6020	Sediment	Arsenic	1.47	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Barium	39.2	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Beryllium	0.12	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6020	Sediment	Cadmium	0.114	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Calcium	2390	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6020	Sediment	Chromium	8.75	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Cobalt	2.99	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Copper	9.6	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Iron	10100	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6020	Sediment	Lead	3.37	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Magnesium	3190	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Manganese	153	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Nickel	7.23	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Potassium	625	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Silver	0.068	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Sodium	134	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Thallium	0.045	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6020	Sediment	Vanadium	20	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD2	2011-04-26	EPA6010B	Sediment	Zinc	28	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.271	0.4578	0.1003	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Aluminum	5100	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Antimony	0.13	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6020	Sediment	Arsenic	1.65	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Barium	57.1	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Beryllium	0.13	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6020	Sediment	Cadmium	0.102	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Calcium	2410	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6020	Sediment	Chromium	7.29	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Cobalt	3.04	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Copper	9.9	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Iron	10700	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6020	Sediment	Lead	3.6	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Magnesium	3260	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Manganese	170	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Nickel	7.3	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Potassium	643	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Silver	0.069	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Sodium	124	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Thallium	0.042	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6020	Sediment	Vanadium	18.8	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFD	CR-KFD3	2011-04-26	EPA6010B	Sediment	Zinc	28.1	TRUE	mg/kg	83.64098179	3.440297757	-411.25	417131	5382670	OU 2 Transitional CSM Unit	3.0275	0.6304	-0.2068	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Aluminum	4910	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Antimony	0.077	FALSE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6020	Sediment	Arsenic	1.82	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Barium	40.5	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Beryllium	0.12	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6020	Sediment	Cadmium	0.115	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Calcium	2350	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6020	Sediment	Chromium	7.89	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Cobalt	3.21	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Copper	10.1	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Iron	10400	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6020	Sediment	Lead	3.76	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Magnesium	3130	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Manganese	165	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Nickel	7.85	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Potassium	565	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Silver	0.067	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Sodium	120	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Thallium	0.04	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6020	Sediment	Vanadium	18.6	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE1	2011-04-26	EPA6010B	Sediment	Zinc	28	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2847	0.6593	-0.0636	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Aluminum	5190	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Antimony	0.077	FALSE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6020	Sediment	Arsenic	1.89	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Barium	43.8	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Beryllium	0.12	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6020	Sediment	Cadmium	0.115	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Calcium	2460	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6020	Sediment	Chromium	8.12	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Cobalt	3.17	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Copper	9	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Iron	11600	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6020	Sediment	Lead	3.52	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Magnesium	3250	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Manganese	171	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Nickel	7.87	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Potassium	587	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Silver	0.068	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Sodium	123	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Thallium	0.046	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6020	Sediment	Vanadium	18.2	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE2	2011-04-26	EPA6010B	Sediment	Zinc	28.6	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2868	0.656	-0.1506	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Aluminum	4220	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Antimony	0.086	FALSE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6020	Sediment	Arsenic	1.65	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Barium	33.4	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Beryllium	0.1	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6020	Sediment	Cadmium	0.101	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Calcium	1950	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6020	Sediment	Chromium	6.87	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Cobalt	2.94	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Copper	8.1	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Iron	9320	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6020	Sediment	Lead	2.63	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Magnesium	2880	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Manganese	143	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Nickel	6.75	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Potassium	502	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Silver	0.059	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Sodium	97	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Thallium	0.037	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6020	Sediment	Vanadium	14.9	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KFE	CR-KFE3	2011-04-26	EPA6010B	Sediment	Zinc	24.3	TRUE	mg/kg	83.64098179	3.440297757	-415.1900024	417131	5382690	OU 2 Transitional CSM Unit	3.2862	0.459	-0.0655	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Aluminum	6780	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Antimony	0.031	FALSE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6020	Sediment	Arsenic	1.8	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Barium	51.1	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6020	Sediment	Cadmium	0.16	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Calcium	7770	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6020	Sediment	Chromium	12.5	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Cobalt	4.51	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Copper	11.7	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Iron	11400	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6020	Sediment	Lead	6.27	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Magnesium	5750	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Manganese	193	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Nickel	14.2	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Potassium	717	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Silver	0.053	FALSE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Sodium	191	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Thallium	0.083	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6020	Sediment	Vanadium	16.3	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA1	2011-04-24	EPA6010B	Sediment	Zinc	41.4	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9011	0.1057	-0.5157	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Aluminum	6890	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Antimony	0.051	FALSE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6020	Sediment	Arsenic	1.57	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Barium	43.3	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6020	Sediment	Cadmium	0.184	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Calcium	13000	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6020	Sediment	Chromium	14.5	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Cobalt	4.41	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Copper	12.8	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Iron	11700	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6020	Sediment	Lead	6.03	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Magnesium	6320	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Manganese	178	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Nickel	13.9	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Potassium	795	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Silver	0.051	FALSE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Sodium	173	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Thallium	0.09	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6020	Sediment	Vanadium	18.6	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA2	2011-04-24	EPA6010B	Sediment	Zinc	39.4	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.9191	-0.1051	-0.825	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Aluminum	6665	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Antimony	0.055	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6020	Sediment	Arsenic	1.665	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Barium	46.85	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6020	Sediment	Cadmium	0.288	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Calcium	6745	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6020	Sediment	Chromium	13.5	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Cobalt	4.46	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Copper	13.05	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Iron	11050	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6020	Sediment	Lead	8.435	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Magnesium	5975	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Manganese	151	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA7471A	Sediment	Mercury	0.0105	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Nickel	12.7	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Potassium	825	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Silver	0.06	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Sodium	158.5	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Thallium	0.102	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6020	Sediment	Vanadium	17.5	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLA	CR-KLA3-1	2011-04-24	EPA6010B	Sediment	Zinc	43.15	TRUE	mg/kg	64.13700047	7.258603513	1318.869995	418135	5392178	OU 2 Transitional CSM Unit	2.4874	-0.5586	-0.2154	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Aluminum	9790	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Antimony	0.074	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6020	Sediment	Arsenic	2.28	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Barium	84.8	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6020	Sediment	Cadmium	0.485	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Calcium	5670	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6020	Sediment	Chromium	17.3	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Cobalt	6.44	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Copper	21.7	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Iron	15800	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6020	Sediment	Lead	13.7	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Magnesium	6930	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Manganese	247	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA7471A	Sediment	Mercury	0.029	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Nickel	17.4	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Potassium	1190	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Silver	0.135	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Sodium	162	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Thallium	0.166	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6020	Sediment	Vanadium	25.4	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB1	2011-04-24	EPA6010B	Sediment	Zinc	74.9	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	1.9839	-0.8023	0.4398	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Aluminum	7210	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Antimony	0.075	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6020	Sediment	Arsenic	2.19	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Barium	54.3	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6020	Sediment	Cadmium	0.366	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Calcium	6650	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6020	Sediment	Chromium	19.5	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Cobalt	4.79	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Copper	14	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Iron	12300	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6020	Sediment	Lead	8.74	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Magnesium	5350	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Manganese	197	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA7471A	Sediment	Mercury	0.015	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Nickel	13.5	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Potassium	885	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Silver	0.052	FALSE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Sodium	150	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Thallium	0.125	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6020	Sediment	Vanadium	18.3	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB2	2011-04-24	EPA6010B	Sediment	Zinc	53.5	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	2.3958	-0.4608	0.0009	3
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Aluminum	10800	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Antimony	0.232	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6020	Sediment	Arsenic	2.08	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Barium	102	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6020	Sediment	Cadmium	1.44	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Calcium	5410	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6020	Sediment	Chromium	21.9	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Cobalt	7.03	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Copper	37.4	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Iron	16000	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6020	Sediment	Lead	35.1	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Magnesium	6560	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Manganese	241	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA7471A	Sediment	Mercury	0.144	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Nickel	18.5	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Potassium	1370	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Silver	0.267	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Sodium	173	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Thallium	0.32	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6020	Sediment	Vanadium	26.5	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLB	CR-KLB3	2011-04-24	EPA6010B	Sediment	Zinc	125	TRUE	mg/kg	64.13700047	7.258603513	1326.099976	418150	5392193	OU 2 Transitional CSM Unit	0.4437	-1.8152	1.2748	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Aluminum	6670	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Antimony	0.029	FALSE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6020	Sediment	Arsenic	1.88	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Barium	49.6	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6020	Sediment	Cadmium	0.257	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Calcium	3840	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6020	Sediment	Chromium	13.5	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Cobalt	5.02	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Copper	13.3	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Iron	12600	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6020	Sediment	Lead	8.99	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Magnesium	5400	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Manganese	179	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Nickel	13.4	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Potassium	771	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Silver	0.063	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Sodium	128	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Thallium	0.118	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6020	Sediment	Vanadium	18.1	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC1	2011-04-24	EPA6010B	Sediment	Zinc	54.7	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	2.5441	-0.3515	0.3112	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Aluminum	7210	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Antimony	0.066	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6020	Sediment	Arsenic	1.79	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Barium	56	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6020	Sediment	Cadmium	0.463	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Calcium	4530	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6020	Sediment	Chromium	14	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Cobalt	5.44	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Copper	17.5	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Iron	13200	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6020	Sediment	Lead	13	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Magnesium	6010	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Manganese	164	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA7471A	Sediment	Mercury	0.029	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Nickel	18.8	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Potassium	807	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Silver	0.081	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Sodium	126	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Thallium	0.132	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6020	Sediment	Vanadium	18.3	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC2	2011-04-24	EPA6010B	Sediment	Zinc	71.1	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.7674	-1.1185	0.4441	3
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Aluminum	6340	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Antimony	0.047	FALSE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6020	Sediment	Arsenic	2.13	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Barium	45	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6020	Sediment	Cadmium	0.816	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Calcium	4620	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6020	Sediment	Chromium	15.7	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Cobalt	4.49	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Copper	14.9	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Iron	11000	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6020	Sediment	Lead	23.9	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Magnesium	4900	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Manganese	149	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA7471A	Sediment	Mercury	0.041	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Nickel	13.6	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Potassium	705	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Silver	0.057	FALSE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Sodium	149	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Thallium	0.141	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6020	Sediment	Vanadium	21	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLC	CR-KLC3	2011-04-24	EPA6010B	Sediment	Zinc	78.6	TRUE	mg/kg	64.13700047	7.258603513	1337.699951	418155	5392208	OU 2 Transitional CSM Unit	1.1149	-1.6403	0.6427	2
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Aluminum	7190	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Antimony	0.063	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6020	Sediment	Arsenic	1.84	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Barium	75.7	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6020	Sediment	Cadmium	0.435	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Calcium	3170	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6020	Sediment	Chromium	12.6	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Cobalt	5.66	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Copper	16.6	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Iron	12400	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6020	Sediment	Lead	12.6	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Magnesium	4780	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Manganese	232	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA7471A	Sediment	Mercury	0.03	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Nickel	15.2	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Potassium	1140	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Silver	0.11	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Sodium	122	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Thallium	0.172	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6020	Sediment	Vanadium	17.7	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD1	2011-04-24	EPA6010B	Sediment	Zinc	59.2	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.816	-0.7693	0.7795	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Aluminum	7300	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Antimony	0.058	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6020	Sediment	Arsenic	1.84	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Barium	67	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6020	Sediment	Cadmium	0.525	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Calcium	5150	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6020	Sediment	Chromium	12.4	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Cobalt	5.21	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Copper	16.9	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Iron	12600	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6020	Sediment	Lead	14.6	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Magnesium	6590	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Manganese	175	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA7471A	Sediment	Mercury	0.026	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Nickel	20.9	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Potassium	919	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Silver	0.089	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Sodium	134	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Thallium	0.169	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6020	Sediment	Vanadium	18.9	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD2	2011-04-24	EPA6010B	Sediment	Zinc	73.7	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.6059	-1.2595	0.2032	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Aluminum	6420	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Antimony	0.024	FALSE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6020	Sediment	Arsenic	1.9	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Barium	54.4	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6020	Sediment	Cadmium	0.464	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Calcium	3470	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6020	Sediment	Chromium	10.1	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Cobalt	4.54	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Copper	11.9	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Iron	11300	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6020	Sediment	Lead	15.5	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Magnesium	5070	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Manganese	155	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA7471A	Sediment	Mercury	0.022	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Nickel	13.4	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Potassium	833	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Silver	0.038	FALSE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Sodium	115	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Thallium	0.111	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6020	Sediment	Vanadium	16.8	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLD	CR-KLD3	2011-04-24	EPA6010B	Sediment	Zinc	73.8	TRUE	mg/kg	64.13700047	7.258603513	1333.619995	418165	5392208	OU 2 Transitional CSM Unit	1.5667	-1.1847	0.3935	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Aluminum	6250	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Antimony	0.031	FALSE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6020	Sediment	Arsenic	1.84	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Barium	46.5	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6020	Sediment	Cadmium	0.173	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Calcium	11500	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6020	Sediment	Chromium	16	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Cobalt	4.84	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Copper	18.4	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Iron	11600	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6020	Sediment	Lead	5.96	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Magnesium	5620	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Manganese	255	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Nickel	18.6	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Potassium	763	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Silver	0.048	FALSE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Sodium	124	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Thallium	0.084	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6020	Sediment	Vanadium	21.1	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE1	2011-04-24	EPA6010B	Sediment	Zinc	37.3	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	3.0784	0.2173	-0.6914	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Aluminum	6020	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Antimony	0.021	FALSE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6020	Sediment	Arsenic	1.77	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Barium	40.1	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6020	Sediment	Cadmium	0.304	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Calcium	5280	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6020	Sediment	Chromium	12.3	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Cobalt	4.8	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Copper	14.1	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Iron	11500	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6020	Sediment	Lead	9.68	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Magnesium	5720	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Manganese	172	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA7471A	Sediment	Mercury	0.012	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Nickel	16.9	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Potassium	649	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Silver	0.052	FALSE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Sodium	137	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Thallium	0.104	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6020	Sediment	Vanadium	19.8	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE2	2011-04-24	EPA6010B	Sediment	Zinc	51.9	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.3925	-0.7287	0.1365	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Aluminum	6520	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Antimony	0.014	FALSE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Barium	52.3	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6020	Sediment	Cadmium	0.354	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Calcium	7710	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6020	Sediment	Chromium	11.9	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Cobalt	4.04	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Copper	13.1	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Iron	11400	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6020	Sediment	Lead	8.74	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Magnesium	4920	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Manganese	198	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Nickel	12	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Potassium	777	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Silver	0.046	FALSE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Sodium	139	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Thallium	0.087	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6020	Sediment	Vanadium	19.2	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-KLE	CR-KLE3	2011-04-24	EPA6010B	Sediment	Zinc	57	TRUE	mg/kg	64.13700047	7.258603513	1344.800049	418160	5392218	OU 2 Transitional CSM Unit	2.2487	-0.2735	-0.369	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Aluminum	5000	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Antimony	0.113	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6020	Sediment	Arsenic	1.57	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Barium	44.2	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Beryllium	0.16	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6020	Sediment	Cadmium	0.284	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Calcium	2010	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6020	Sediment	Chromium	6.5	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Cobalt	5.51	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Copper	8.4	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Iron	10800	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6020	Sediment	Lead	12.4	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Magnesium	3320	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Manganese	127	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Nickel	8.46	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Potassium	711	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Silver	0.065	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Sodium	99	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Thallium	0.144	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6020	Sediment	Vanadium	15.2	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA1	2011-04-24	EPA6010B	Sediment	Zinc	59.8	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	2.041	-0.3998	0.7452	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Aluminum	5910	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Antimony	0.112	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6020	Sediment	Arsenic	1.49	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Barium	66.8	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6020	Sediment	Cadmium	0.418	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Calcium	2380	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6020	Sediment	Chromium	9.79	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Cobalt	3.91	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Copper	10.7	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Iron	11000	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6020	Sediment	Lead	14.9	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Magnesium	2950	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Manganese	146	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA7471A	Sediment	Mercury	0.016	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Nickel	9.15	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Potassium	1140	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Silver	0.081	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Sodium	96	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Thallium	0.159	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6020	Sediment	Vanadium	14.8	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA2	2011-04-24	EPA6010B	Sediment	Zinc	61.1	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	1.5358	-0.689	0.824	3
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Aluminum	5900	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Antimony	0.222	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6020	Sediment	Arsenic	1.54	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Barium	72.3	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6020	Sediment	Cadmium	0.976	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Calcium	2300	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6020	Sediment	Chromium	12.1	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Cobalt	3.75	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Copper	15.6	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Iron	11200	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6020	Sediment	Lead	42.6	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Magnesium	3110	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Manganese	111	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA7471A	Sediment	Mercury	0.12	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Nickel	9.39	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Potassium	1040	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Silver	0.163	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Sodium	98	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Thallium	0.35	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6020	Sediment	Vanadium	17.2	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYA	CR-LYA3	2011-04-24	EPA6010B	Sediment	Zinc	127	TRUE	mg/kg	70.7611281	27.17635066	-477.6300049	417342	5381379	OU 2 Upper Laucustrine CSM Unit	-0.1972	-2.0125	1.3249	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Aluminum	6890	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Antimony	0.185	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6020	Sediment	Arsenic	1.89	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Barium	84.1	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6020	Sediment	Cadmium	0.689	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Calcium	3010	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6020	Sediment	Chromium	10.8	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Cobalt	4.52	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Copper	14.9	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Iron	12900	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6020	Sediment	Lead	28.8	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Magnesium	3680	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Manganese	167	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA7471A	Sediment	Mercury	0.058	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Nickel	11.1	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Potassium	1170	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Silver	0.138	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Sodium	109	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Thallium	0.209	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6020	Sediment	Vanadium	15.2	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB1	2011-04-24	EPA6010B	Sediment	Zinc	120	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.45	-1.2926	0.8699	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Aluminum	7600	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Antimony	0.268	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6020	Sediment	Arsenic	1.92	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Barium	95.1	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6020	Sediment	Cadmium	0.919	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Calcium	2880	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6020	Sediment	Chromium	12.4	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Cobalt	4.98	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Copper	20.7	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Iron	13300	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6020	Sediment	Lead	36.4	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Magnesium	3940	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Manganese	147	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA7471A	Sediment	Mercury	0.087	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Nickel	12	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Potassium	1250	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Silver	0.206	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Sodium	119	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Thallium	0.306	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6020	Sediment	Vanadium	17.3	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB2	2011-04-24	EPA6010B	Sediment	Zinc	145	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	0.1013	-1.6286	1.1488	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Aluminum	8120	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Antimony	0.477	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6020	Sediment	Arsenic	3.24	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Barium	179	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6020	Sediment	Cadmium	2.88	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Calcium	5410	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6020	Sediment	Chromium	15.2	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Cobalt	4.92	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Copper	25.6	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Iron	14600	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6020	Sediment	Lead	129	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Magnesium	5890	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Manganese	141	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA7471A	Sediment	Mercury	0.294	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Nickel	12.4	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Potassium	1290	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Silver	0.335	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Sodium	127	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Thallium	0.444	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6020	Sediment	Vanadium	21.5	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYB	CR-LYB3	2011-04-24	EPA6010B	Sediment	Zinc	318	TRUE	mg/kg	70.7611281	27.17635066	-540.4000244	417382	5381319	OU 2 Upper Laucustrine CSM Unit	-1.7927	-2.7326	0.4196	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Aluminum	8070	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Antimony	0.387	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6020	Sediment	Arsenic	3.77	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Barium	144	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6020	Sediment	Cadmium	2.31	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Calcium	3260	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6020	Sediment	Chromium	11.3	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Cobalt	4.18	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Copper	21	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Iron	14700	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6020	Sediment	Lead	150	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Magnesium	4240	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Manganese	136	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA7471A	Sediment	Mercury	0.234	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Nickel	9.82	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Potassium	903	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Silver	0.257	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Sodium	104	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Thallium	0.489	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6020	Sediment	Vanadium	18	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC1	2011-04-24	EPA6010B	Sediment	Zinc	327	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.9052	-2.543	0.6565	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Aluminum	11600	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Antimony	0.349	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6020	Sediment	Arsenic	2.85	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Barium	138	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6020	Sediment	Cadmium	1.87	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Calcium	2750	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6020	Sediment	Chromium	9.11	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Cobalt	3.85	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Copper	18	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Iron	13800	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6020	Sediment	Lead	96	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Magnesium	3660	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Manganese	140	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA7471A	Sediment	Mercury	0.152	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Nickel	8.98	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Potassium	1060	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Silver	0.122	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Sodium	129	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Thallium	0.212	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6020	Sediment	Vanadium	17.5	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC2	2011-04-24	EPA6010B	Sediment	Zinc	190	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	-1.1499	-2.3884	1.0332	2
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Aluminum	12300	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Antimony	0.173	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6020	Sediment	Arsenic	1.43	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Barium	115	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6020	Sediment	Cadmium	0.141	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Calcium	2150	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6020	Sediment	Chromium	7.74	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Cobalt	3.99	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Copper	12.1	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Iron	12700	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6020	Sediment	Lead	5.74	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Magnesium	3060	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Manganese	141	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Nickel	9.54	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Potassium	1120	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Silver	0.065	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Sodium	142	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Thallium	0.074	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6020	Sediment	Vanadium	15.5	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYC	CR-LYC3	2011-04-24	EPA6010B	Sediment	Zinc	38.4	TRUE	mg/kg	70.7611281	27.17635066	-429.8399963	417312	5381429	OU 2 Upper Laucustrine CSM Unit	2.7766	0.3151	0.5103	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Aluminum	8780	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Antimony	0.86	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6020	Sediment	Arsenic	5.57	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Barium	345	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6020	Sediment	Cadmium	4.85	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Calcium	11600	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6020	Sediment	Chromium	11.5	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Cobalt	4.14	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Copper	30.2	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Iron	15700	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6020	Sediment	Lead	276	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Magnesium	9590	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Manganese	185	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA7471A	Sediment	Mercury	0.481	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Nickel	10.8	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Potassium	919	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Silver	0.352	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Sodium	111	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Thallium	0.582	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6020	Sediment	Vanadium	17.9	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD1	2011-04-24	EPA6010B	Sediment	Zinc	724	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.5722	-3.1319	-0.9547	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Aluminum	12800	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Antimony	0.948	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6020	Sediment	Arsenic	7.56	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Barium	336	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6020	Sediment	Cadmium	5.82	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Calcium	11100	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6020	Sediment	Chromium	11.5	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Cobalt	4.24	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Copper	28.8	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Iron	16200	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6020	Sediment	Lead	253	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Magnesium	8940	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Manganese	237	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA7471A	Sediment	Mercury	0.424	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Nickel	9.63	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Potassium	1010	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Silver	0.364	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Sodium	127	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Thallium	0.401	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6020	Sediment	Vanadium	19.8	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD2	2011-04-24	EPA6010B	Sediment	Zinc	612	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	-3.2154	-3.0899	-0.8454	2
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Aluminum	19300	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Antimony	0.157	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6020	Sediment	Arsenic	2.19	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Barium	207	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Beryllium	0.48	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6020	Sediment	Cadmium	0.343	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Calcium	2410	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6020	Sediment	Chromium	9.49	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Cobalt	4.32	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Copper	14.6	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Iron	15400	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6020	Sediment	Lead	18.1	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Magnesium	3260	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Manganese	169	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA7471A	Sediment	Mercury	0.014	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Nickel	8.17	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Potassium	1090	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Silver	0.069	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Sodium	168	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Thallium	0.141	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6020	Sediment	Vanadium	20.6	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYD	CR-LYD3	2011-04-24	EPA6010B	Sediment	Zinc	56.7	TRUE	mg/kg	70.7611281	27.17635066	-377.0599976	417292	5381539	OU 2 Upper Laucustrine CSM Unit	1.5733	-0.2544	0.7123	3
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Aluminum	9670	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Antimony	1.31	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6020	Sediment	Arsenic	8.14	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Barium	444	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6020	Sediment	Cadmium	8.24	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Calcium	19300	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6020	Sediment	Chromium	14.2	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Cobalt	4.43	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Copper	49.5	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Iron	17300	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6020	Sediment	Lead	395	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Magnesium	14500	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Manganese	220	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA7471A	Sediment	Mercury	1.09	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Nickel	11.7	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Potassium	1040	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Silver	0.51	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Sodium	134	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Thallium	0.602	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6020	Sediment	Vanadium	21.5	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE1	2011-04-24	EPA6010B	Sediment	Zinc	1060	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-4.3347	-3.6008	-1.4404	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Aluminum	14700	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Antimony	0.991	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6020	Sediment	Arsenic	9.07	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Barium	332	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Beryllium	0.42	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6020	Sediment	Cadmium	5.8	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Calcium	11100	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6020	Sediment	Chromium	10.1	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Cobalt	4.25	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Copper	35.6	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Iron	16300	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6020	Sediment	Lead	230	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Magnesium	8910	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Manganese	183	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA7471A	Sediment	Mercury	0.536	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Potassium	1030	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Silver	0.321	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Sodium	144	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Thallium	0.421	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6020	Sediment	Vanadium	18.2	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-LYE	CR-LYE2	2011-04-24	EPA6010B	Sediment	Zinc	605	TRUE	mg/kg	70.7611281	27.17635066	-340.1499939	417262	5381579	OU 2 Upper Laucustrine CSM Unit	-3.2986	-3.3344	-0.9647	2
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Aluminum	6280	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Antimony	0.36	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6020	Sediment	Arsenic	3.88	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Barium	46.6	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6020	Sediment	Cadmium	0.097	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Calcium	1760	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6020	Sediment	Chromium	11.6	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Cobalt	4.5	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Copper	11.4	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Iron	14100	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6020	Sediment	Lead	5.54	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Magnesium	3340	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Manganese	175	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Nickel	12.5	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Potassium	856	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Silver	0.073	FALSE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Sodium	51	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Thallium	0.07	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6020	Sediment	Vanadium	14.9	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA1	2011-05-04	EPA6010B	Sediment	Zinc	32.9	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.5808	0.1327	0.27	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Aluminum	6090	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Antimony	0.145	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6020	Sediment	Arsenic	3.98	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Barium	53	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6020	Sediment	Cadmium	0.109	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Calcium	1920	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6020	Sediment	Chromium	11.8	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Cobalt	4.68	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Copper	10	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Iron	13500	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6020	Sediment	Lead	5.12	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Magnesium	3190	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Manganese	243	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Nickel	13	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Potassium	908	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Silver	0.049	FALSE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Sodium	56	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Thallium	0.07	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6020	Sediment	Vanadium	15.8	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA2	2011-05-04	EPA6010B	Sediment	Zinc	32.9	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.6478	0.3924	0.2095	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Aluminum	6200	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Antimony	0.157	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6020	Sediment	Arsenic	3.94	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Barium	46.5	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6020	Sediment	Cadmium	0.113	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Calcium	1870	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6020	Sediment	Chromium	11.3	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Cobalt	4.91	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Copper	9.6	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Iron	13600	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6020	Sediment	Lead	5.07	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Magnesium	3330	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Manganese	226	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Nickel	12.2	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Potassium	964	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Silver	0.044	FALSE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Sodium	59	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Thallium	0.058	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6020	Sediment	Vanadium	15.2	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGA	CR-MGA3	2011-05-04	EPA6010B	Sediment	Zinc	32.6	TRUE	mg/kg	75.84446289	21.97238361	-357.3999939	398602	5315265	OU 2 Middle Laucustrine CSM Unit	3.7488	0.3131	0.2957	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Aluminum	6160	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Antimony	0.182	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6020	Sediment	Arsenic	3.31	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Barium	46.5	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6020	Sediment	Cadmium	0.097	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Calcium	2170	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6020	Sediment	Chromium	11.3	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Cobalt	4.91	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Copper	9.5	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Iron	14700	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6020	Sediment	Lead	5.03	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Magnesium	3770	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Manganese	191	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Nickel	12.7	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Potassium	775	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Silver	0.041	FALSE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Sodium	66	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Thallium	0.057	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6020	Sediment	Vanadium	13.9	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB1	2011-05-04	EPA6010B	Sediment	Zinc	36.6	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.7007	0.5042	0.0978	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Aluminum	6220	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Antimony	0.176	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6020	Sediment	Arsenic	4.12	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Barium	56.3	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6020	Sediment	Cadmium	0.118	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Calcium	2120	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6020	Sediment	Chromium	12.3	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Cobalt	5.6	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Copper	11.3	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Iron	15700	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6020	Sediment	Lead	5.57	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Magnesium	4110	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Manganese	251	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Nickel	14.4	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Potassium	802	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Silver	0.054	FALSE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Sodium	60	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Thallium	0.064	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6020	Sediment	Vanadium	16.6	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB2	2011-05-04	EPA6010B	Sediment	Zinc	38.8	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.649	0.5279	0.1228	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Aluminum	5590	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Antimony	0.145	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6020	Sediment	Arsenic	3.44	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Barium	41	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6020	Sediment	Cadmium	0.114	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Calcium	2040	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6020	Sediment	Chromium	12.4	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Cobalt	4.75	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Copper	10.1	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Iron	13500	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6020	Sediment	Lead	4.85	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Magnesium	3620	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Manganese	197	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Nickel	13	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Potassium	685	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Silver	0.044	FALSE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Sodium	66	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Thallium	0.06	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6020	Sediment	Vanadium	14.7	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGB	CR-MGB3	2011-05-04	EPA6010B	Sediment	Zinc	33.3	TRUE	mg/kg	75.84446289	21.97238361	-385.5299988	398622	5315285	OU 2 Middle Laucustrine CSM Unit	3.6902	0.4397	0.1612	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Aluminum	5810	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Antimony	0.194	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6020	Sediment	Arsenic	3.69	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Barium	52	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6020	Sediment	Cadmium	0.184	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Calcium	6220	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6020	Sediment	Chromium	12.3	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Cobalt	4.89	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Copper	9.1	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Iron	13900	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6020	Sediment	Lead	5.37	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Magnesium	4030	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Manganese	200	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Nickel	13.3	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Potassium	919	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Silver	0.045	FALSE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Sodium	68	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Thallium	0.095	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6020	Sediment	Vanadium	14.9	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC1	2011-05-04	EPA6010B	Sediment	Zinc	42.1	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	3.2902	0.3539	-0.8848	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Aluminum	5770	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Antimony	0.165	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6020	Sediment	Arsenic	3.64	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Barium	51.1	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6020	Sediment	Cadmium	0.228	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Calcium	7330	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6020	Sediment	Chromium	12.2	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Cobalt	4.49	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Copper	9.5	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Iron	13400	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6020	Sediment	Lead	5.68	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Magnesium	3870	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Manganese	177	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Potassium	872	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Silver	0.044	FALSE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Sodium	70	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Thallium	0.095	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6020	Sediment	Vanadium	14	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC2	2011-05-04	EPA6010B	Sediment	Zinc	46.2	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.8572	0.0271	-0.9437	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Aluminum	5820	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Antimony	0.156	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6020	Sediment	Arsenic	3.52	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Barium	48.6	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6020	Sediment	Cadmium	0.427	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Calcium	4430	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6020	Sediment	Chromium	12.2	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Cobalt	4.65	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Copper	8.8	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Iron	13800	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6020	Sediment	Lead	8.65	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Magnesium	3820	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Manganese	162	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Nickel	12.4	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Potassium	887	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Silver	0.045	FALSE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Sodium	69	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Thallium	0.132	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6020	Sediment	Vanadium	13.8	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGC	CR-MGC3	2011-05-04	EPA6010B	Sediment	Zinc	64.3	TRUE	mg/kg	75.84446289	21.97238361	-464.230011	398562	5315525	OU 2 Middle Laucustrine CSM Unit	2.2805	-0.5955	-0.2425	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Aluminum	13800	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Antimony	0.355	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6020	Sediment	Arsenic	7.96	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Barium	155	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6020	Sediment	Cadmium	0.223	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Calcium	21500	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6020	Sediment	Chromium	25	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Cobalt	11.7	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Copper	24.4	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Iron	28000	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6020	Sediment	Lead	12.1	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Magnesium	7860	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Manganese	480	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA7471A	Sediment	Mercury	0.025	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Nickel	29.3	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Potassium	2270	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Silver	0.133	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Sodium	112	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Thallium	0.15	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6020	Sediment	Vanadium	26.8	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD1	2011-05-04	EPA6010B	Sediment	Zinc	73.4	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.8866	0.1974	-1.2599	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Aluminum	15600	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Antimony	0.137	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6020	Sediment	Arsenic	11.9	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Barium	204	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Beryllium	0.54	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6020	Sediment	Cadmium	0.255	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Calcium	57100	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6020	Sediment	Chromium	30.2	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Cobalt	12	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Copper	27.1	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Iron	28200	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6020	Sediment	Lead	13.2	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Magnesium	9800	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Manganese	504	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA7471A	Sediment	Mercury	0.028	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Nickel	32.1	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Potassium	2380	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Silver	0.156	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Sodium	137	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Thallium	0.146	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6020	Sediment	Vanadium	32.1	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD2	2011-05-04	EPA6010B	Sediment	Zinc	75.2	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.6766	0.082	-2.3606	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Aluminum	16400	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Antimony	0.128	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6020	Sediment	Arsenic	13	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Barium	202	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Beryllium	0.59	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6020	Sediment	Cadmium	0.291	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Calcium	42300	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6020	Sediment	Chromium	34	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Cobalt	12.3	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Copper	29	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Iron	28500	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6020	Sediment	Lead	15	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Magnesium	11000	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Manganese	543	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA7471A	Sediment	Mercury	0.024	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Nickel	31.8	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Potassium	2620	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Silver	0.104	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Sodium	143	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Thallium	0.172	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6020	Sediment	Vanadium	36.6	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGD	CR-MGD3	2011-05-04	EPA6010B	Sediment	Zinc	79	TRUE	mg/kg	75.84446289	21.97238361	-187.7599945	398262	5315495	OU 2 Middle Laucustrine CSM Unit	2.823	0.0029	-2.0309	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Aluminum	7325	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Antimony	0.085	FALSE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6020	Sediment	Arsenic	4.15	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Barium	81.45	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6020	Sediment	Cadmium	0.2205	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Calcium	2720	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6020	Sediment	Chromium	12.45	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Cobalt	6.19	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Copper	10.7	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Iron	13500	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6020	Sediment	Lead	9.34	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Magnesium	3700	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Nickel	12.95	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Potassium	1340	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Silver	0.038	FALSE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Sodium	73	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Thallium	0.182	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6020	Sediment	Vanadium	15.5	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE1-1	2011-05-04	EPA6010B	Sediment	Zinc	54.2	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	2.7558	0.0032	0.1686	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Aluminum	5250	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Antimony	0.064	FALSE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6020	Sediment	Arsenic	2.56	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Barium	53.3	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Beryllium	0.16	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6020	Sediment	Cadmium	0.115	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Calcium	2020	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6020	Sediment	Chromium	9.68	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Cobalt	4.14	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Copper	8.9	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Iron	10200	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6020	Sediment	Lead	5.63	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Magnesium	2770	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Manganese	169	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Nickel	9.79	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Potassium	956	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Silver	0.041	FALSE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Sodium	63	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Thallium	0.097	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6020	Sediment	Vanadium	12.6	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE2	2011-05-04	EPA6010B	Sediment	Zinc	32.4	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.1603	0.2732	0.1472	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Aluminum	6860	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Antimony	0.08	FALSE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6020	Sediment	Arsenic	2.55	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Barium	60	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6020	Sediment	Cadmium	0.091	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Calcium	4200	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6020	Sediment	Chromium	13.5	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Cobalt	4.98	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Copper	12	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Iron	13200	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6020	Sediment	Lead	5.38	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Magnesium	3870	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Manganese	219	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Nickel	13.3	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Potassium	1190	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Silver	0.079	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Sodium	91	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Thallium	0.081	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6020	Sediment	Vanadium	16.3	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MGE	CR-MGE3	2011-05-04	EPA6010B	Sediment	Zinc	32.3	TRUE	mg/kg	75.84446289	21.97238361	-146.3699951	398182	5315535	OU 2 Middle Laucustrine CSM Unit	3.4824	0.4466	-0.2012	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Aluminum	6070	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Antimony	0.184	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6020	Sediment	Arsenic	4.41	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Barium	56.2	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6020	Sediment	Cadmium	0.096	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Calcium	4560	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6020	Sediment	Chromium	12.1	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Cobalt	5.63	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Copper	11.8	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Iron	14200	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6020	Sediment	Lead	5.9	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Magnesium	3950	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Manganese	212	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Nickel	14	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Potassium	936	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Silver	0.07	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Sodium	137	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Thallium	0.113	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6020	Sediment	Vanadium	13.4	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA1	2011-05-01	EPA6010B	Sediment	Zinc	37.4	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.3493	0.792	-0.6726	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Aluminum	6810	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Antimony	0.251	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6020	Sediment	Arsenic	6.13	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Barium	65.2	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6020	Sediment	Cadmium	0.131	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Calcium	5390	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6020	Sediment	Chromium	12.8	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Cobalt	6.72	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Copper	14.3	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Iron	15900	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6020	Sediment	Lead	6.71	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Magnesium	4390	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Manganese	279	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Nickel	16.9	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Potassium	1060	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Silver	0.074	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Sodium	112	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Thallium	0.115	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6020	Sediment	Vanadium	13.6	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA2	2011-05-01	EPA6010B	Sediment	Zinc	44.1	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	3.2425	0.7066	-0.7755	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Aluminum	7820	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Antimony	0.258	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6020	Sediment	Arsenic	4.43	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Barium	86.8	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6020	Sediment	Cadmium	0.259	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Calcium	7220	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6020	Sediment	Chromium	15.8	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Cobalt	7.33	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Copper	19.2	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Iron	17200	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6020	Sediment	Lead	8.54	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Magnesium	4830	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Manganese	248	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Nickel	18.2	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Potassium	1210	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Silver	0.109	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Sodium	131	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Thallium	0.162	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6020	Sediment	Vanadium	16.9	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPA	CR-MPA3	2011-05-01	EPA6010B	Sediment	Zinc	51.3	TRUE	mg/kg	73.37030484	15.75939031	332.9700012	396925	5321852	OU 2 Middle Laucustrine CSM Unit	2.6398	0.2331	-0.4903	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Aluminum	5520	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Antimony	0.207	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6020	Sediment	Arsenic	3.49	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Barium	62.9	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6020	Sediment	Cadmium	0.091	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Calcium	4480	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6020	Sediment	Chromium	11.2	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Cobalt	4.56	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Copper	12.7	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Iron	14000	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6020	Sediment	Lead	4.32	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Magnesium	3630	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Manganese	199	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Nickel	13.5	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Potassium	861	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Silver	0.087	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Sodium	102	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Thallium	0.065	FALSE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6020	Sediment	Vanadium	13.5	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB1	2011-05-01	EPA6010B	Sediment	Zinc	35.1	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.4069	1.0102	-0.7944	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Aluminum	6380	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Antimony	0.258	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6020	Sediment	Arsenic	4.3	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Barium	61.6	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6020	Sediment	Cadmium	0.13	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Calcium	3790	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6020	Sediment	Chromium	12.4	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Cobalt	5.56	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Copper	14.1	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6020	Sediment	Lead	5.74	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Magnesium	4060	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Manganese	209	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Nickel	15	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Potassium	1030	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Silver	0.072	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Sodium	97	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Thallium	0.114	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6020	Sediment	Vanadium	13.5	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB2	2011-05-01	EPA6010B	Sediment	Zinc	40.4	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.2863	0.6139	-0.4303	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Aluminum	14000	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Antimony	0.39	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6020	Sediment	Arsenic	9.1	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Barium	109	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Beryllium	0.51	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6020	Sediment	Cadmium	0.164	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Calcium	2520	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6020	Sediment	Chromium	22.8	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Cobalt	10.8	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Copper	29.9	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Iron	25300	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6020	Sediment	Lead	10.8	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Magnesium	6230	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Manganese	334	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Nickel	27.4	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Potassium	2730	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Silver	0.101	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Sodium	81	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Thallium	0.118	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6020	Sediment	Vanadium	25.1	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPB	CR-MPB3	2011-05-01	EPA6010B	Sediment	Zinc	61.6	TRUE	mg/kg	73.37030484	15.75939031	345.9500122	396985	5321892	OU 2 Middle Laucustrine CSM Unit	3.923	0.2457	0.5087	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Aluminum	7500	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Antimony	0.242	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6020	Sediment	Arsenic	4.33	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Barium	76.2	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6020	Sediment	Cadmium	0.106	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Calcium	4180	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6020	Sediment	Chromium	12.4	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Cobalt	6.56	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Copper	16.9	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Iron	16000	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6020	Sediment	Lead	5.48	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Magnesium	4600	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Manganese	263	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Nickel	17	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Potassium	1200	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Silver	0.064	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Sodium	126	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Thallium	0.076	FALSE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6020	Sediment	Vanadium	14.8	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC1	2011-05-01	EPA6010B	Sediment	Zinc	43.7	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4898	0.9797	-0.4899	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Aluminum	6550	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Antimony	0.253	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6020	Sediment	Arsenic	3.66	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Barium	67.6	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6020	Sediment	Cadmium	0.101	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Calcium	3280	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6020	Sediment	Chromium	13.7	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Cobalt	5.61	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Iron	15000	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6020	Sediment	Lead	4.94	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Magnesium	4090	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Manganese	204	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Nickel	16.2	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Potassium	1040	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Silver	0.075	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Sodium	128	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Thallium	0.075	FALSE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6020	Sediment	Vanadium	13.7	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC2	2011-05-01	EPA6010B	Sediment	Zinc	36.2	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.4896	0.7636	-0.2564	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Aluminum	6720	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Antimony	0.192	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6020	Sediment	Arsenic	4.06	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Barium	65.9	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6020	Sediment	Cadmium	0.097	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Calcium	3740	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6020	Sediment	Chromium	12.4	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Cobalt	5.54	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Copper	14	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Iron	15000	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6020	Sediment	Lead	5.58	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Magnesium	4190	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Manganese	211	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Nickel	14.9	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Potassium	978	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Silver	0.065	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Sodium	96	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Thallium	0.071	FALSE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6020	Sediment	Vanadium	13.9	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPC	CR-MPC3	2011-05-01	EPA6010B	Sediment	Zinc	37.3	TRUE	mg/kg	73.37030484	15.75939031	388.7099915	397065	5321962	OU 2 Middle Laucustrine CSM Unit	3.3537	0.6559	-0.5049	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Aluminum	6050	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Antimony	0.189	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6020	Sediment	Arsenic	3.97	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Barium	55.1	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6020	Sediment	Cadmium	0.103	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Calcium	2710	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6020	Sediment	Chromium	12.7	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Cobalt	5.12	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Copper	12.7	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Iron	13800	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6020	Sediment	Lead	5.23	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Magnesium	3850	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Manganese	190	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Nickel	14.5	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Potassium	985	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Silver	0.072	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Sodium	83	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Thallium	0.096	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6020	Sediment	Vanadium	13.4	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD1	2011-05-01	EPA6010B	Sediment	Zinc	35.9	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.6414	0.7045	-0.2641	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Aluminum	5620	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Antimony	0.196	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6020	Sediment	Arsenic	4.13	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Barium	51.2	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6020	Sediment	Cadmium	0.133	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Calcium	1960	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6020	Sediment	Chromium	10.5	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Cobalt	4.82	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Copper	13.1	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Iron	13900	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6020	Sediment	Lead	4.87	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Magnesium	3430	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Manganese	201	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Nickel	12.9	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Potassium	883	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Silver	0.053	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Sodium	107	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Thallium	0.127	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6020	Sediment	Vanadium	12.1	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD2	2011-05-01	EPA6010B	Sediment	Zinc	38.1	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.3427	0.7176	0.0433	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Aluminum	6320	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Antimony	0.189	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6020	Sediment	Arsenic	4.12	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Barium	71.1	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6020	Sediment	Cadmium	0.172	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Calcium	2460	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Cobalt	5.77	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Copper	13.2	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6020	Sediment	Lead	5.55	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Magnesium	3620	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Manganese	284	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Nickel	13.4	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Potassium	1050	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Silver	0.053	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Sodium	104	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Thallium	0.104	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6020	Sediment	Vanadium	13.7	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPD	CR-MPD3	2011-05-01	EPA6010B	Sediment	Zinc	45.7	TRUE	mg/kg	73.37030484	15.75939031	469.5	397105	5322052	OU 2 Middle Laucustrine CSM Unit	3.1773	0.7938	0.1003	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Aluminum	6130	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Antimony	0.214	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6020	Sediment	Arsenic	5.22	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Barium	64.7	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6020	Sediment	Cadmium	0.089	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Calcium	4260	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6020	Sediment	Chromium	12.2	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Cobalt	5.65	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Copper	12.9	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Iron	13800	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6020	Sediment	Lead	5.45	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Magnesium	3810	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Manganese	225	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Nickel	14.3	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Potassium	980	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Silver	0.064	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Sodium	119	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Thallium	0.086	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6020	Sediment	Vanadium	13.7	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE1	2011-05-01	EPA6010B	Sediment	Zinc	36.8	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.487	0.934	-0.7397	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Aluminum	6730	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Antimony	0.235	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6020	Sediment	Arsenic	5.58	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Barium	72	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6020	Sediment	Cadmium	0.14	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Calcium	4520	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6020	Sediment	Chromium	12.9	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Cobalt	6.25	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Copper	14.9	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Iron	15200	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6020	Sediment	Lead	6.71	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Magnesium	4000	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Manganese	233	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Nickel	15.3	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Potassium	1100	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Silver	0.082	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Sodium	124	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Thallium	0.097	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6020	Sediment	Vanadium	14.1	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE2	2011-05-01	EPA6010B	Sediment	Zinc	40.9	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3271	0.9174	-0.6728	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Aluminum	6750	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Antimony	0.225	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6020	Sediment	Arsenic	8.94	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Barium	74.1	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6020	Sediment	Cadmium	0.12	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Calcium	4250	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6020	Sediment	Chromium	14	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Cobalt	6.63	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Copper	15.1	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Iron	16600	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6020	Sediment	Lead	6.75	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Magnesium	4140	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Manganese	214	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Nickel	16	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Potassium	1120	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Silver	0.07	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Sodium	117	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Thallium	0.115	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6020	Sediment	Vanadium	14.8	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-MPE	CR-MPE3	2011-05-01	EPA6010B	Sediment	Zinc	41.7	TRUE	mg/kg	73.37030484	15.75939031	428.4299927	397115	5322012	OU 2 Middle Laucustrine CSM Unit	3.3001	0.5893	-0.8208	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Aluminum	6710	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Antimony	0.158	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6020	Sediment	Arsenic	3.12	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Barium	84.2	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6020	Sediment	Cadmium	0.517	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Calcium	1840	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6020	Sediment	Chromium	13.8	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Cobalt	5.12	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Copper	10.2	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Iron	13000	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6020	Sediment	Lead	13.5	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Magnesium	2640	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Manganese	170	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Nickel	11.2	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Potassium	1160	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Silver	0.039	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Sodium	57	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Thallium	0.285	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6020	Sediment	Vanadium	15.7	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA1	2011-04-30	EPA6010B	Sediment	Zinc	95.8	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	1.8963	-0.5367	0.9754	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Aluminum	7630	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Antimony	0.181	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6020	Sediment	Arsenic	4.21	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Barium	89.2	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6020	Sediment	Cadmium	0.303	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Calcium	1820	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6020	Sediment	Chromium	14.5	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Cobalt	5.65	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Copper	10	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Iron	16100	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6020	Sediment	Lead	11.5	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Magnesium	3040	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Manganese	265	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Nickel	13.1	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Potassium	1290	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Silver	0.031	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Sodium	51	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Thallium	0.213	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6020	Sediment	Vanadium	17.4	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA2	2011-04-30	EPA6010B	Sediment	Zinc	80	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	2.7135	0.0832	0.7618	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Aluminum	9090	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Antimony	0.213	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6020	Sediment	Arsenic	5.84	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Barium	85.8	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6020	Sediment	Cadmium	0.082	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Calcium	2650	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6020	Sediment	Chromium	17.1	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Cobalt	6.64	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Copper	16.6	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Iron	17200	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6020	Sediment	Lead	7.48	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Magnesium	3540	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Manganese	275	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Nickel	16.4	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Potassium	1360	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Silver	0.058	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Sodium	75	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Thallium	0.072	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6020	Sediment	Vanadium	18.3	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAA	CR-NAA3	2011-04-30	EPA6010B	Sediment	Zinc	42.4	TRUE	mg/kg	60.89677791	31.01419523	-882.8800049	399025	5321692	OU 2 Middle Laucustrine CSM Unit	3.7544	0.8296	0.0942	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Aluminum	5370	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Antimony	0.236	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6020	Sediment	Arsenic	3.84	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Barium	54.7	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6020	Sediment	Cadmium	0.091	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Calcium	2230	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6020	Sediment	Chromium	11	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Cobalt	5.32	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Copper	10.6	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6020	Sediment	Lead	5.28	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Magnesium	3160	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Manganese	214	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Nickel	13.6	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Potassium	789	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Silver	0.048	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Sodium	41	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Thallium	0.058	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6020	Sediment	Vanadium	12.8	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB1	2011-04-30	EPA6010B	Sediment	Zinc	37.8	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	3.3723	0.4914	-0.0672	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Aluminum	6850	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Antimony	0.269	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6020	Sediment	Arsenic	5.41	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Barium	84.9	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6020	Sediment	Cadmium	0.201	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Calcium	2450	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6020	Sediment	Chromium	14.9	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Cobalt	8.47	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Copper	15.5	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Iron	16600	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6020	Sediment	Lead	9.43	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Magnesium	3520	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Manganese	316	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Nickel	17.1	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Potassium	1120	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Silver	0.058	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Sodium	43	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Thallium	0.144	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6020	Sediment	Vanadium	17.8	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB2	2011-04-30	EPA6010B	Sediment	Zinc	52.7	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	2.996	0.291	0.3399	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Aluminum	6110	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Antimony	0.201	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6020	Sediment	Arsenic	4.35	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Barium	72.1	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6020	Sediment	Cadmium	0.66	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Calcium	1820	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6020	Sediment	Chromium	14.7	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Cobalt	5.81	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Copper	11.4	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Iron	14000	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6020	Sediment	Lead	17.4	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Magnesium	2730	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Manganese	148	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA7471A	Sediment	Mercury	0.012	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Nickel	12.6	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Potassium	1240	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Silver	0.047	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Sodium	43	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Thallium	0.351	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6020	Sediment	Vanadium	16.9	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAB	CR-NAB3	2011-04-30	EPA6010B	Sediment	Zinc	102	TRUE	mg/kg	60.89677791	31.01419523	-881.3200073	399145	5321732	OU 2 Middle Laucustrine CSM Unit	1.7807	-0.9902	0.9551	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Aluminum	6610	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Antimony	0.185	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6020	Sediment	Arsenic	5.08	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Barium	90.3	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6020	Sediment	Cadmium	0.175	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Calcium	2440	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6020	Sediment	Chromium	14.7	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Cobalt	6.55	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Copper	13.6	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Iron	14600	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6020	Sediment	Lead	8.07	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Magnesium	2940	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Manganese	197	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Nickel	14	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Potassium	1110	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Silver	0.045	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Sodium	68	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Thallium	0.161	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6020	Sediment	Vanadium	16.9	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC1	2011-04-30	EPA6010B	Sediment	Zinc	47.8	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.0328	0.4478	0.1387	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Aluminum	7190	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Antimony	0.1625	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6020	Sediment	Arsenic	4.385	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Barium	87.1	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6020	Sediment	Cadmium	0.7325	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Calcium	2245	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6020	Sediment	Chromium	15.2	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Cobalt	6.28	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Copper	12.45	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Iron	15200	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6020	Sediment	Lead	16.7	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Magnesium	3165	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Manganese	173	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA7471A	Sediment	Mercury	0.0185	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Nickel	14.1	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Potassium	1170	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Silver	0.0425	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Sodium	64.5	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Thallium	0.3285	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6020	Sediment	Vanadium	16.85	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC2-1	2011-04-30	EPA6010B	Sediment	Zinc	118.5	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	1.5668	-0.8966	0.821	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Aluminum	8270	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Antimony	0.202	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6020	Sediment	Arsenic	4.94	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Barium	84.5	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6020	Sediment	Cadmium	0.167	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Calcium	1780	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6020	Sediment	Chromium	17.3	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Cobalt	6.45	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Copper	12.7	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Iron	15500	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6020	Sediment	Lead	8.6	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Magnesium	3460	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Manganese	264	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Nickel	13.6	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Potassium	1730	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Silver	0.032	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Sodium	62	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Thallium	0.099	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6020	Sediment	Vanadium	19.8	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAC	CR-NAC3	2011-04-30	EPA6010B	Sediment	Zinc	44	TRUE	mg/kg	60.89677791	31.01419523	-902.9000244	399115	5321702	OU 2 Middle Laucustrine CSM Unit	3.5941	0.3055	0.6725	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Aluminum	8760	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Antimony	0.149	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6020	Sediment	Arsenic	2.54	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Barium	102	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6020	Sediment	Cadmium	0.833	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Calcium	1860	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6020	Sediment	Chromium	12.1	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Cobalt	4.41	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Copper	11.9	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Iron	12300	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6020	Sediment	Lead	22.3	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Magnesium	2800	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Manganese	176	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA7471A	Sediment	Mercury	0.014	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Nickel	9.66	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Potassium	1290	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Silver	0.049	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Sodium	90	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Thallium	0.444	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6020	Sediment	Vanadium	15.1	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD1	2011-04-30	EPA6010B	Sediment	Zinc	121	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	1.0872	-0.8958	1.2609	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Aluminum	8460	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6020	Sediment	Arsenic	2.54	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Barium	114	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6020	Sediment	Cadmium	0.189	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Calcium	1370	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6020	Sediment	Chromium	9.92	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Cobalt	4.38	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Copper	10.4	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Iron	12700	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6020	Sediment	Lead	9.01	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Magnesium	2580	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Manganese	244	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Nickel	8.5	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Potassium	1430	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Silver	0.027	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Sodium	69	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Thallium	0.118	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6020	Sediment	Vanadium	13.4	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD2	2011-04-30	EPA6010B	Sediment	Zinc	45	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	2.6624	0.4344	0.8632	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Aluminum	10600	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Antimony	0.206	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6020	Sediment	Arsenic	5	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Barium	114	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6020	Sediment	Cadmium	0.099	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Calcium	2010	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6020	Sediment	Chromium	14.9	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Cobalt	6.46	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Copper	17.4	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6020	Sediment	Lead	8.61	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Magnesium	3250	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Manganese	254	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Nickel	13	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Potassium	1660	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Silver	0.064	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Sodium	109	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Thallium	0.103	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6020	Sediment	Vanadium	18.2	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NAD	CR-NAD3	2011-04-30	EPA6010B	Sediment	Zinc	37.6	TRUE	mg/kg	60.89677791	31.01419523	-842.3900146	399025	5321742	OU 2 Middle Laucustrine CSM Unit	3.4528	0.7324	0.4048	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Aluminum	6810	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Antimony	0.172	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6020	Sediment	Arsenic	4.08	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Barium	84.4	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6020	Sediment	Cadmium	0.172	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Calcium	1630	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6020	Sediment	Chromium	12.8	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Cobalt	5.9	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Copper	12	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Iron	13400	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6020	Sediment	Lead	8.45	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Magnesium	2990	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Manganese	231	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Nickel	12.2	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Potassium	1170	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Silver	0.021	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Sodium	64	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Thallium	0.161	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6020	Sediment	Vanadium	16.1	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE1	2011-04-30	EPA6010B	Sediment	Zinc	48.5	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.2903	0.7045	0.5157	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Aluminum	9270	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Antimony	0.214	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6020	Sediment	Arsenic	6.44	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Barium	113	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6020	Sediment	Cadmium	0.143	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Calcium	2330	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6020	Sediment	Chromium	16.8	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Cobalt	7.54	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Copper	15.1	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Iron	16200	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6020	Sediment	Lead	9.25	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Magnesium	3460	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Manganese	352	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Nickel	14.1	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Potassium	1470	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Silver	0.034	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Sodium	96	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Thallium	0.117	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6020	Sediment	Vanadium	19.8	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE2	2011-04-30	EPA6010B	Sediment	Zinc	45.2	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.4863	0.9512	0.2847	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Aluminum	10700	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Antimony	0.274	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6020	Sediment	Arsenic	7.4	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Barium	108	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6020	Sediment	Cadmium	0.108	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Calcium	2830	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6020	Sediment	Chromium	18.8	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Cobalt	8.2	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Copper	20.7	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6020	Sediment	Lead	9.08	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Magnesium	4170	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Manganese	336	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Nickel	18.8	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Potassium	1710	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Silver	0.085	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Sodium	106	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Thallium	0.086	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6020	Sediment	Vanadium	20.4	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NAE	CR-NAE3	2011-04-30	EPA6010B	Sediment	Zinc	43.7	TRUE	mg/kg	60.89677791	31.01419523	-899.0999756	399055	5321692	OU 2 Middle Laucustrine CSM Unit	3.577	0.7002	0.1214	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Aluminum	6220	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Antimony	8.59	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6020	Sediment	Arsenic	4.32	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Barium	364	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6020	Sediment	Cadmium	1.88	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Calcium	21400	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6020	Sediment	Chromium	18.8	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Cobalt	8.2	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Copper	251	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Iron	32100	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6020	Sediment	Lead	133	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Magnesium	8850	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Manganese	506	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA7471A	Sediment	Mercury	0.067	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Nickel	9.53	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Potassium	1080	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Selenium	0.28	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Silver	1.04	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Sodium	316	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Thallium	0.136	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6020	Sediment	Vanadium	15.5	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA1	2010-04-29	EPA6010B	Sediment	Zinc	2150	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-3.3056	0.8122	-0.796	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Aluminum	5010	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Antimony	6.31	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6020	Sediment	Arsenic	3.21	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Barium	214	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6020	Sediment	Cadmium	0.861	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Calcium	10600	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6020	Sediment	Chromium	14.8	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Cobalt	5.9	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Copper	165	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Iron	23300	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6020	Sediment	Lead	113	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Magnesium	4180	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Manganese	365	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA7471A	Sediment	Mercury	0.025	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Nickel	7.75	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Potassium	937	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Selenium	0.25	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Silver	0.666	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Sodium	307	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Thallium	0.078	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6020	Sediment	Vanadium	12.4	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA2	2010-04-29	EPA6010B	Sediment	Zinc	1280	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	-2.5821	1.2654	-0.103	1
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Aluminum	2860	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Antimony	0.045	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6020	Sediment	Arsenic	0.69	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Barium	39.8	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6020	Sediment	Cadmium	0.057	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Calcium	1700	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6020	Sediment	Chromium	4.9	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Cobalt	3.1	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Copper	6.6	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Iron	6150	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6020	Sediment	Lead	2.1	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Magnesium	1670	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Manganese	92.2	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Nickel	6.66	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Potassium	595	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Selenium	0.04	FALSE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Silver	0.035	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Sodium	154	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Thallium	0.041	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6020	Sediment	Vanadium	7.82	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPA	CR-NPA3	2010-04-29	EPA6010B	Sediment	Zinc	18.8	TRUE	mg/kg	92.03423968	4.588788184	-177.8399963	443423	5419081	OU 1 North	3.3184	1.2141	0.4375	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Aluminum	9240	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Antimony	6.85	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6020	Sediment	Arsenic	8.27	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Barium	587	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6020	Sediment	Cadmium	4.17	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Calcium	26600	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6020	Sediment	Chromium	23.5	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Cobalt	9.7	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Copper	207	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Iron	33200	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6020	Sediment	Lead	259	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Magnesium	14100	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Manganese	420	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA7471A	Sediment	Mercury	0.222	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Nickel	18.4	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Potassium	1560	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Selenium	0.76	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Silver	1.35	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Sodium	217	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Thallium	0.353	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6020	Sediment	Vanadium	26.4	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB1	2010-04-29	EPA6010B	Sediment	Zinc	1880	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.4903	-1.1054	-1.1005	2
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Aluminum	11800	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Antimony	7.96	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6020	Sediment	Arsenic	8.1	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Barium	363	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6020	Sediment	Cadmium	2.13	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Calcium	28000	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6020	Sediment	Chromium	29.2	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Cobalt	12.5	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Copper	477	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Iron	65400	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6020	Sediment	Lead	421	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Magnesium	7740	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Manganese	1190	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA7471A	Sediment	Mercury	0.177	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Potassium	2790	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Selenium	1.11	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Silver	1.15	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Sodium	1170	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Thallium	0.158	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6020	Sediment	Vanadium	34.7	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB2	2010-04-29	EPA6010B	Sediment	Zinc	4800	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	-3.2912	1.3996	0.2632	1
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Aluminum	2830	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Antimony	0.032	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6020	Sediment	Arsenic	0.81	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Barium	36.8	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Beryllium	0.11	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6020	Sediment	Cadmium	0.119	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Calcium	1660	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6020	Sediment	Chromium	4.87	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Cobalt	2.3	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Copper	15.6	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Iron	5860	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6020	Sediment	Lead	5.69	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Magnesium	1590	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Manganese	90.3	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Nickel	5.76	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Potassium	536	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Selenium	0.04	FALSE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Silver	0.061	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Sodium	148	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Thallium	0.044	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6020	Sediment	Vanadium	8.46	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPB	CR-NPB3	2010-04-29	EPA6010B	Sediment	Zinc	46.3	TRUE	mg/kg	92.03423968	4.588788184	-173.2100067	443425	5419086	OU 1 North	1.4902	0.4694	0.6721	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Aluminum	5530	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Antimony	11.4	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6020	Sediment	Arsenic	6.06	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Barium	486	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6020	Sediment	Cadmium	2.73	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Calcium	27100	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6020	Sediment	Chromium	19.5	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Cobalt	7.5	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Copper	215	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Iron	29000	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6020	Sediment	Lead	182	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Magnesium	12600	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Manganese	459	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA7471A	Sediment	Mercury	0.11	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Nickel	9.96	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Potassium	891	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Selenium	0.39	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Silver	1.36	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Sodium	226	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Thallium	0.184	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6020	Sediment	Vanadium	19.3	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC1	2010-04-29	EPA6010B	Sediment	Zinc	1980	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.8196	-0.052	-1.506	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Aluminum	5870	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Antimony	7.98	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6020	Sediment	Arsenic	4.81	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Barium	295	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6020	Sediment	Cadmium	1.49	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Calcium	16600	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6020	Sediment	Chromium	20.2	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Cobalt	7.6	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Copper	241	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Iron	31700	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6020	Sediment	Lead	144	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Magnesium	6240	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Manganese	548	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA7471A	Sediment	Mercury	0.064	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Nickel	7.84	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Potassium	1000	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Selenium	0.47	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Silver	0.591	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Sodium	315	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Thallium	0.119	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6020	Sediment	Vanadium	18.9	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC2	2010-04-29	EPA6010B	Sediment	Zinc	2190	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	-3.1405	1.0572	-0.3942	1
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Aluminum	2940	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Antimony	0.016	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6020	Sediment	Arsenic	0.76	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Barium	32.7	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Beryllium	0.13	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6020	Sediment	Cadmium	0.062	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Calcium	1750	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6020	Sediment	Chromium	5.46	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Cobalt	2.5	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Copper	7.5	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Iron	6400	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6020	Sediment	Lead	2.31	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Magnesium	1630	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Manganese	94.4	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Nickel	5.35	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Potassium	559	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Selenium	0.04	FALSE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Silver	0.04	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Sodium	142	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Thallium	0.044	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6020	Sediment	Vanadium	8.37	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPC	CR-NPC3	2010-04-29	EPA6010B	Sediment	Zinc	18.7	TRUE	mg/kg	92.03423968	4.588788184	-180.6300049	443428	5419079	OU 1 North	3.2208	1.1571	0.4137	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Aluminum	6910	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Antimony	12.6	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6020	Sediment	Arsenic	5.81	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Barium	498	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6020	Sediment	Cadmium	2.46	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Calcium	27500	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6020	Sediment	Chromium	23.9	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Cobalt	9.6	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Copper	325	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Iron	45500	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6020	Sediment	Lead	205	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Magnesium	10600	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Manganese	745	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA7471A	Sediment	Mercury	0.076	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Nickel	10.9	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Potassium	1160	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Selenium	0.6	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Silver	0.943	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Sodium	352	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Thallium	0.157	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6020	Sediment	Vanadium	19.3	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD1	2010-04-29	EPA6010B	Sediment	Zinc	3050	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-3.6191	1.0648	-0.8732	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Aluminum	4410	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Antimony	4.99	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6020	Sediment	Arsenic	3.52	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Barium	160	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6020	Sediment	Cadmium	0.914	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Calcium	8180	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6020	Sediment	Chromium	12.4	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Cobalt	4.7	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Copper	118	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Iron	17700	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6020	Sediment	Lead	131	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Magnesium	3840	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Manganese	263	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA7471A	Sediment	Mercury	0.082	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Nickel	7.45	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Potassium	707	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Selenium	0.22	FALSE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Silver	0.552	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Sodium	177	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Thallium	0.144	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6020	Sediment	Vanadium	12.6	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD2	2010-04-29	EPA6010B	Sediment	Zinc	992	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	-2.9274	-0.0337	-0.0014	1
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Aluminum	2970	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Antimony	0.028	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6020	Sediment	Arsenic	0.74	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Barium	33	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Beryllium	0.11	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6020	Sediment	Cadmium	0.059	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Calcium	1700	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6020	Sediment	Chromium	5.34	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Cobalt	2.1	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Copper	6.7	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Iron	6440	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6020	Sediment	Lead	2.2	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Magnesium	1590	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Manganese	95.5	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Nickel	5.66	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Potassium	529	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Silver	0.046	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Sodium	148	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Thallium	0.043	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6020	Sediment	Vanadium	8.81	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPD	CR-NPD3	2010-04-29	EPA6010B	Sediment	Zinc	18.4	TRUE	mg/kg	92.03423968	4.588788184	-183.9400024	443430	5419076	OU 1 North	3.1188	0.9925	0.3271	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Aluminum	6590	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Antimony	13	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6020	Sediment	Arsenic	6.86	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Barium	538	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Calcium	31400	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6020	Sediment	Chromium	23.6	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Cobalt	9.8	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Copper	295	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Iron	41600	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6020	Sediment	Lead	219	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Magnesium	13100	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Manganese	640	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA7471A	Sediment	Mercury	0.129	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Nickel	10.7	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Potassium	1080	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Selenium	0.46	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Silver	1.01	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Sodium	287	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Thallium	0.216	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6020	Sediment	Vanadium	20.7	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE1	2010-04-29	EPA6010B	Sediment	Zinc	2760	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.8803	0.4344	-1.2621	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Aluminum	2940	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Antimony	0.056	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6020	Sediment	Arsenic	0.79	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Barium	36.5	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Beryllium	0.13	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6020	Sediment	Cadmium	0.062	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Calcium	1700	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6020	Sediment	Chromium	6.93	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Cobalt	2.3	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Copper	7.1	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Iron	5800	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6020	Sediment	Lead	2.94	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Magnesium	1610	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Manganese	97.4	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Nickel	5.76	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Potassium	566	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Selenium	0.04	FALSE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Silver	0.047	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Sodium	138	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Thallium	0.046	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6020	Sediment	Vanadium	8.02	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE2	2010-04-29	EPA6010B	Sediment	Zinc	19.8	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	2.9155	0.8352	0.5065	3
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Aluminum	8690	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Antimony	12.8	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6020	Sediment	Arsenic	6.82	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Barium	486	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6020	Sediment	Cadmium	2.66	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Calcium	28000	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6020	Sediment	Chromium	28.4	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Cobalt	12.8	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Copper	418	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Iron	54100	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6020	Sediment	Lead	344	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Magnesium	8690	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Manganese	1040	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA7471A	Sediment	Mercury	0.091	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Nickel	9.85	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Potassium	1600	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Selenium	0.67	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Silver	1.06	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Sodium	564	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Thallium	0.167	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6020	Sediment	Vanadium	21.6	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NPE	CR-NPE3	2010-04-29	EPA6010B	Sediment	Zinc	3960	TRUE	mg/kg	92.03423968	4.588788184	-180.0099945	443430	5419080	OU 1 North	-3.68	1.5243	-0.2677	1
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Aluminum	6580	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Antimony	0.257	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6020	Sediment	Arsenic	11.9	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Barium	56.2	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6020	Sediment	Cadmium	0.174	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Calcium	11300	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6020	Sediment	Chromium	18.1	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Cobalt	7.91	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Copper	17.4	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Iron	17400	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Lead	10	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Magnesium	5190	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Manganese	299	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Nickel	19.6	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Potassium	778	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Silver	0.12	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Sodium	104	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Thallium	0.065	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6020	Sediment	Vanadium	18.5	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA1	2011-04-26	EPA6010B	Sediment	Zinc	45	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0338	0.3076	-1.4047	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Aluminum	6730	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Antimony	0.299	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6020	Sediment	Arsenic	15.3	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Barium	79	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6020	Sediment	Cadmium	0.193	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Calcium	13400	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6020	Sediment	Chromium	19.4	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Cobalt	13.2	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Copper	18.8	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Iron	19200	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Lead	11	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Magnesium	5390	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Manganese	510	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Nickel	23.6	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Potassium	799	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Silver	0.145	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Sodium	99	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Thallium	0.064	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6020	Sediment	Vanadium	18.3	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA2	2011-04-26	EPA6010B	Sediment	Zinc	46.3	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	2.9878	0.815	-1.5409	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Aluminum	7600	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Antimony	0.214	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6020	Sediment	Arsenic	11	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Barium	63.3	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6020	Sediment	Cadmium	0.163	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Calcium	15000	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6020	Sediment	Chromium	19.8	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Cobalt	8.56	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Copper	18.6	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Iron	20200	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Lead	9.4	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Magnesium	5960	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Manganese	323	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA7471A	Sediment	Mercury	0.013	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Nickel	23.1	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Potassium	853	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Silver	0.101	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Sodium	116	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Thallium	0.056	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6020	Sediment	Vanadium	18.7	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZA	CR-NZA3	2011-04-26	EPA6010B	Sediment	Zinc	45.9	TRUE	mg/kg	68.04764193	30.8471202	268.1799927	408111	5332354	OU 2 Upper Laucustrine CSM Unit	3.0703	0.3479	-1.5647	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Aluminum	5850	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Antimony	0.176	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6020	Sediment	Arsenic	5.3	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Barium	40.9	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6020	Sediment	Cadmium	0.108	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Calcium	9960	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6020	Sediment	Chromium	13.3	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Cobalt	5.39	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Copper	12.5	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Iron	14600	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Lead	5.7	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Magnesium	4820	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Manganese	213	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Nickel	15.5	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Potassium	610	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Silver	0.056	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Sodium	107	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Thallium	0.036	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6020	Sediment	Vanadium	16.7	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB1	2011-04-26	EPA6010B	Sediment	Zinc	32.3	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.4316	0.5089	-1.4234	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Aluminum	7760	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Antimony	0.179	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Barium	70.7	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6020	Sediment	Cadmium	0.165	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Calcium	13300	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6020	Sediment	Chromium	18.6	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Cobalt	8.24	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Copper	17.4	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Lead	8.6	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Magnesium	6130	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Manganese	325	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Nickel	20.6	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Potassium	979	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Silver	0.098	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Sodium	122	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Thallium	0.06	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6020	Sediment	Vanadium	20.6	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB2	2011-04-26	EPA6010B	Sediment	Zinc	43.6	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2034	0.429	-1.4196	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Aluminum	8080	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Antimony	0.203	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6020	Sediment	Arsenic	8.09	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Barium	71.9	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6020	Sediment	Cadmium	0.173	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Calcium	14200	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6020	Sediment	Chromium	19.8	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Cobalt	8.14	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Copper	17.6	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Iron	18900	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Lead	8.5	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Magnesium	6330	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Manganese	355	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Nickel	21.9	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Potassium	1120	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Silver	0.087	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Sodium	133	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Thallium	0.071	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6020	Sediment	Vanadium	22.1	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3
2009–2011 Beach Sediment Study	CR-NZB	CR-NZB3	2011-04-26	EPA6010B	Sediment	Zinc	45.4	TRUE	mg/kg	68.04764193	30.8471202	345.9899902	408171	5332424	OU 2 Upper Laucustrine CSM Unit	3.2696	0.464	-1.4254	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Aluminum	7950	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Antimony	0.18	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6020	Sediment	Arsenic	6.93	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Barium	78.9	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6020	Sediment	Cadmium	0.157	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Calcium	15200	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6020	Sediment	Chromium	17.3	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Cobalt	6.55	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Copper	16.9	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Iron	17500	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Lead	8.5	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Magnesium	6210	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Manganese	283	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Nickel	17.8	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Potassium	1080	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Silver	0.103	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Sodium	151	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Thallium	0.073	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6020	Sediment	Vanadium	20.2	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC1	2011-04-26	EPA6010B	Sediment	Zinc	42.2	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.0845	0.4821	-1.6288	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Aluminum	7270	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Antimony	0.139	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6020	Sediment	Arsenic	6.69	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Barium	58.9	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6020	Sediment	Cadmium	0.139	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Calcium	14400	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6020	Sediment	Chromium	17.4	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Cobalt	7.19	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Copper	16.5	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Iron	17400	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Lead	7.6	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Manganese	288	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Nickel	19.1	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Potassium	863	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Silver	0.079	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Sodium	137	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Thallium	0.055	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6020	Sediment	Vanadium	18.6	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC2	2011-04-26	EPA6010B	Sediment	Zinc	39.2	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.2576	0.5131	-1.4978	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Aluminum	7080	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Antimony	0.141	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6020	Sediment	Arsenic	6.54	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Barium	50.6	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6020	Sediment	Cadmium	0.143	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Calcium	14300	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6020	Sediment	Chromium	18	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Cobalt	6.9	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Copper	16.1	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Iron	17100	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Lead	6.9	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Magnesium	6070	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Manganese	269	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Nickel	19.5	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Potassium	847	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Silver	0.068	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Sodium	131	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Thallium	0.049	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6020	Sediment	Vanadium	19	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZC	CR-NZC3	2011-04-26	EPA6010B	Sediment	Zinc	38.1	TRUE	mg/kg	68.04764193	30.8471202	419.7099915	408261	5332474	OU 2 Upper Laucustrine CSM Unit	3.4128	0.4353	-1.463	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Aluminum	7110	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Antimony	0.155	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6020	Sediment	Arsenic	5.26	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Barium	53	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6020	Sediment	Cadmium	0.158	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Calcium	8490	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6020	Sediment	Chromium	16.6	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Cobalt	6.24	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Copper	15.6	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Iron	16700	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Lead	6.6	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Magnesium	4940	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Manganese	252	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Nickel	17.6	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Potassium	788	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Silver	0.066	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Sodium	117	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Thallium	0.077	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6020	Sediment	Vanadium	18.5	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD1	2011-04-26	EPA6010B	Sediment	Zinc	40.4	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.3468	0.5873	-0.9877	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Aluminum	7760	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Antimony	0.144	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6020	Sediment	Arsenic	4.62	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Barium	61	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6020	Sediment	Cadmium	0.436	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Calcium	2960	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6020	Sediment	Chromium	15.7	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Cobalt	6.44	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Copper	14.6	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Iron	16300	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Lead	11	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Magnesium	4190	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Manganese	211	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Nickel	17.3	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Potassium	948	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Silver	0.051	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Sodium	88	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Thallium	0.105	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6020	Sediment	Vanadium	18.4	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD2	2011-04-26	EPA6010B	Sediment	Zinc	55.6	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	2.5974	-0.4378	0.3972	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Aluminum	10000	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Antimony	0.126	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6020	Sediment	Arsenic	4.46	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Barium	83	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6020	Sediment	Cadmium	0.254	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Calcium	2800	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6020	Sediment	Chromium	17.8	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Cobalt	6.12	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Copper	13.4	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Iron	16500	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Lead	9.1	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Magnesium	3680	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Manganese	251	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Nickel	15.6	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Potassium	1300	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Silver	0.04	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Sodium	91	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Thallium	0.087	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6020	Sediment	Vanadium	21.1	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZD	CR-NZD3	2011-04-26	EPA6010B	Sediment	Zinc	48.1	TRUE	mg/kg	68.04764193	30.8471202	504.6499939	408261	5332564	OU 2 Upper Laucustrine CSM Unit	3.2937	0.2	0.4489	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Aluminum	7410	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Antimony	0.126	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6020	Sediment	Arsenic	5.51	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Barium	52.7	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6020	Sediment	Cadmium	0.131	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Calcium	8470	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6020	Sediment	Chromium	18.8	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Cobalt	6.92	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Copper	15.5	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Iron	17000	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Lead	8.4	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Magnesium	5580	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Manganese	264	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Nickel	20.4	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Potassium	666	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Silver	0.072	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Sodium	99	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Thallium	0.044	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6020	Sediment	Vanadium	19.1	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE1	2011-04-26	EPA6010B	Sediment	Zinc	41.2	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2733	0.3196	-0.9016	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Aluminum	7620	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Antimony	0.179	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6020	Sediment	Arsenic	5.38	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Barium	36.4	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6020	Sediment	Cadmium	0.135	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Calcium	9290	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6020	Sediment	Chromium	20.9	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Cobalt	7.08	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Copper	18.8	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Iron	18900	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Lead	8.9	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Magnesium	5330	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Manganese	308	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Nickel	21.8	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Potassium	687	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Silver	0.075	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Sodium	82	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Thallium	0.048	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6020	Sediment	Vanadium	20.3	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE2	2011-04-26	EPA6010B	Sediment	Zinc	45.3	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.3952	0.1879	-0.5229	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Aluminum	6940	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Antimony	0.16	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6020	Sediment	Arsenic	6.35	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Barium	33.3	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6020	Sediment	Cadmium	0.134	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Calcium	9390	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6020	Sediment	Chromium	19.3	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Cobalt	6.53	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Copper	17.6	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Iron	17400	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Lead	9	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Magnesium	4800	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Manganese	268	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA7471A	Sediment	Mercury	0.012	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Nickel	21.5	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Potassium	626	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Silver	0.072	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Sodium	88	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Thallium	0.044	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6020	Sediment	Vanadium	18.7	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-NZE	CR-NZE3	2011-04-26	EPA6010B	Sediment	Zinc	42.6	TRUE	mg/kg	68.04764193	30.8471202	434.4400024	408171	5332514	OU 2 Upper Laucustrine CSM Unit	3.2804	0.0557	-0.6797	3
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Aluminum	8690	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Antimony	21.7	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6020	Sediment	Arsenic	12.85	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Barium	756	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Beryllium	0.365	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6020	Sediment	Cadmium	4.855	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Calcium	40350	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Chromium	38.8	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Cobalt	14.1	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Copper	575.5	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Iron	77200	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Lead	367.5	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Magnesium	15600	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Manganese	1385	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.1815	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Nickel	12.1	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Potassium	1350	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Selenium	1.5	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Silver	2.145	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Sodium	526	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Thallium	0.3315	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Vanadium	37.25	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA1-1	2009-09-10	EPA6010B	Sediment	Zinc	6715	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-4.185	1.107	-0.897	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Aluminum	10100	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Antimony	7.23	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6020	Sediment	Arsenic	5.97	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Barium	460	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Beryllium	0.42	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6020	Sediment	Cadmium	2.42	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Calcium	27000	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Chromium	27.9	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Cobalt	8.4	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Copper	416	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Iron	75400	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Lead	296	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Magnesium	7760	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Manganese	1490	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.133	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Nickel	8.64	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Potassium	1650	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Selenium	1.3	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Silver	0.896	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Sodium	506	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Thallium	0.116	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Vanadium	28.9	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA2	2009-09-10	EPA6010B	Sediment	Zinc	6940	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.8161	1.5603	0.1347	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Aluminum	8770	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Antimony	8.16	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6020	Sediment	Arsenic	6.61	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Barium	336	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6020	Sediment	Cadmium	1.89	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Calcium	24500	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Chromium	24.4	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Cobalt	7.3	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Copper	376	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Iron	65100	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Lead	248	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Magnesium	6370	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Manganese	1350	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.149	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Nickel	6.95	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Potassium	1480	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Selenium	1.3	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Silver	0.771	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Sodium	461	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Thallium	0.107	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Vanadium	25.7	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVA	CR-RVA3	2009-09-10	EPA6010B	Sediment	Zinc	6080	TRUE	mg/kg	97.43345531	2.564038298	-136.4100037	448317	5422145	OU 1 North	-3.7524	1.5637	0.0105	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Aluminum	5970	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Antimony	5.74	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6020	Sediment	Arsenic	6.51	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Barium	507	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6020	Sediment	Cadmium	4.52	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Calcium	44400	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Chromium	18.3	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Cobalt	5.2	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Copper	215	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Iron	36500	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Lead	264	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Magnesium	19200	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Manganese	734	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.143	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Nickel	8.43	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Potassium	1020	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Selenium	0.8	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Silver	0.561	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Sodium	254	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Thallium	0.246	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Vanadium	23	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB1	2009-09-10	EPA6010B	Sediment	Zinc	3750	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.5452	-0.3439	-1.9547	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Aluminum	6430	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Antimony	4.62	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6020	Sediment	Arsenic	5.39	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Barium	478	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6020	Sediment	Cadmium	3.56	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Calcium	34200	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Chromium	18.2	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Cobalt	5.5	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Copper	221	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Iron	39100	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Lead	230	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Magnesium	14800	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Manganese	785	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.105	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Nickel	9.07	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Potassium	1180	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Silver	0.521	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Sodium	279	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Thallium	0.384	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Vanadium	23.1	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB2	2009-09-10	EPA6010B	Sediment	Zinc	3600	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-4.1426	0.0821	-1.4252	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Aluminum	7040	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Antimony	4.38	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6020	Sediment	Arsenic	3.68	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Barium	229	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6020	Sediment	Cadmium	1.47	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Calcium	19200	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Chromium	17.7	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Cobalt	5.8	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Copper	256	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Iron	46600	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Lead	161	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Magnesium	5760	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Manganese	962	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.085	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Nickel	7.03	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Potassium	1250	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Selenium	0.8	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Silver	0.493	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Sodium	344	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Thallium	0.09	FALSE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Vanadium	19.2	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVB	CR-RVB3	2009-09-10	EPA6010B	Sediment	Zinc	4140	TRUE	mg/kg	97.43345531	2.564038298	-163.2700043	448282	5422105	OU 1 North	-3.3625	1.318	0.1509	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Aluminum	7030	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Antimony	8.25	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6020	Sediment	Arsenic	9.37	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Barium	709	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6020	Sediment	Cadmium	6.02	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Calcium	47300	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Chromium	20.9	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Cobalt	7.3	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Copper	268	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Iron	51300	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Lead	417	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Magnesium	20900	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Manganese	877	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.17	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Nickel	11	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Potassium	1230	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Selenium	1.1	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Silver	0.818	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Sodium	328	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Thallium	0.229	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Vanadium	31.4	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC1	2009-09-10	EPA6010B	Sediment	Zinc	5050	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.696	-0.2273	-1.8367	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Aluminum	7090	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Antimony	6.58	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6020	Sediment	Arsenic	11	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Barium	172	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6020	Sediment	Cadmium	3.91	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Calcium	27800	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Chromium	13.1	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Cobalt	7.7	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Copper	268	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Iron	44100	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Lead	535	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Magnesium	10100	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Manganese	842	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.122	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Nickel	7.99	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Potassium	1260	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Selenium	1	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Silver	0.601	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Sodium	410	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Thallium	0.091	FALSE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Vanadium	23.4	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC2	2009-09-10	EPA6010B	Sediment	Zinc	6160	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.2009	-0.0282	-0.6487	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Aluminum	7290	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Antimony	6.12	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6020	Sediment	Arsenic	7.94	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Barium	168	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6020	Sediment	Cadmium	5.32	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Calcium	39900	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Chromium	13.1	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Cobalt	7.8	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Copper	287	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Iron	50800	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Lead	395	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Magnesium	13600	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Manganese	1030	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.186	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Nickel	7.28	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Potassium	1180	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Selenium	1	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Silver	0.487	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Sodium	351	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Thallium	0.095	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Vanadium	22.6	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVC	CR-RVC3	2009-09-10	EPA6010B	Sediment	Zinc	6490	TRUE	mg/kg	97.43345531	2.564038298	-170.0500031	448252	5422085	OU 1 North	-4.3817	-0.1162	-0.8168	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Aluminum	5340	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Antimony	7.17	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6020	Sediment	Arsenic	7.51	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Barium	399	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6020	Sediment	Cadmium	3.59	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Calcium	35700	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Chromium	15.3	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Cobalt	5.4	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Copper	210	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Iron	37100	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Lead	232	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Magnesium	15600	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Manganese	720	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.216	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Nickel	7.49	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Potassium	878	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Selenium	0.7	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Silver	0.648	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Sodium	253	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Thallium	0.167	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Vanadium	22.8	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD1	2009-09-10	EPA6010B	Sediment	Zinc	3670	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-4.517	-0.2739	-1.8023	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Aluminum	8550	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Antimony	7.1	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6020	Sediment	Arsenic	5.9	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Barium	417	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6020	Sediment	Cadmium	2.49	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Calcium	26600	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Chromium	24.9	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Cobalt	7.1	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Copper	374	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Iron	62500	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Lead	216	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Magnesium	8130	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Manganese	1240	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.084	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Nickel	8.14	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Potassium	1390	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Selenium	1.2	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Silver	0.948	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Sodium	435	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Thallium	0.137	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Vanadium	25.6	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD2	2009-09-10	EPA6010B	Sediment	Zinc	5540	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.7098	1.4551	-0.2337	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Aluminum	9610	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Antimony	7.16	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6020	Sediment	Arsenic	4.94	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Barium	325	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6020	Sediment	Cadmium	1.72	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Calcium	24500	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Chromium	25.8	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Cobalt	7.4	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Copper	423	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Iron	68800	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Lead	210	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Magnesium	5870	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Manganese	1440	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.097	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Nickel	6.96	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Potassium	1580	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Selenium	1.2	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Silver	0.78	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Sodium	473	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Thallium	0.115	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Vanadium	23.6	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVD	CR-RVD3	2009-09-10	EPA6010B	Sediment	Zinc	6530	TRUE	mg/kg	97.43345531	2.564038298	-151.1999969	448287	5422120	OU 1 North	-3.5436	1.9481	0.3171	1
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Aluminum	7000	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Antimony	6.81	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6020	Sediment	Arsenic	9.47	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Barium	351	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6020	Sediment	Cadmium	5.3	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Calcium	37600	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Chromium	18.2	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Cobalt	6.2	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Copper	262	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Iron	46600	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Lead	360	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Magnesium	14100	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Manganese	945	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.841	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Nickel	8.3	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Potassium	1100	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Silver	0.521	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Sodium	326	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Thallium	0.146	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Vanadium	25	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE1	2009-09-10	EPA6010B	Sediment	Zinc	5130	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9567	-0.6624	-1.2237	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Aluminum	6410	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Antimony	4.19	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6020	Sediment	Arsenic	7.21	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Barium	259	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6020	Sediment	Cadmium	6.07	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Calcium	39600	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Chromium	12	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Cobalt	5.3	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Copper	194	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Iron	32900	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Lead	330	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Magnesium	15300	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Manganese	722	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.604	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Nickel	8.69	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Potassium	1070	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Selenium	0.7	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Silver	0.45	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Sodium	306	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Thallium	0.138	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Vanadium	21.4	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE2	2009-09-10	EPA6010B	Sediment	Zinc	3940	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.9207	-1.2596	-1.4886	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Aluminum	6660	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Antimony	5.2	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6020	Sediment	Arsenic	8.47	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Barium	179	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6020	Sediment	Cadmium	4.68	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Calcium	29300	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Chromium	13	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Cobalt	6.9	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Copper	209	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Iron	34900	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Lead	435	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Magnesium	11200	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Manganese	696	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.234	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Nickel	8.88	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Potassium	1270	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Selenium	0.8	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Silver	0.415	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Sodium	373	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Thallium	0.126	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Vanadium	23	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-RVE	CR-RVE3	2009-09-10	EPA6010B	Sediment	Zinc	4640	TRUE	mg/kg	97.43345531	2.564038298	-159.8099976	448272	5422105	OU 1 North	-4.3038	-0.6982	-0.8195	2
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Aluminum	5460	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Antimony	0.5	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6020	Sediment	Arsenic	6.04	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Barium	55.5	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Beryllium	0.47	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6020	Sediment	Cadmium	0.096	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Calcium	10400	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6020	Sediment	Chromium	7.48	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Cobalt	4.44	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Copper	10.3	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Iron	12900	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6020	Sediment	Lead	6.23	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Magnesium	4370	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Manganese	252	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Nickel	7.22	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Potassium	1070	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Silver	0.365	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Sodium	35	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Thallium	0.099	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6020	Sediment	Vanadium	10.4	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA1	2011-05-05	EPA6010B	Sediment	Zinc	40.5	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	2.9075	0.2244	-1.641	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Aluminum	6080	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Antimony	0.244	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6020	Sediment	Arsenic	5.9	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Barium	53.6	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6020	Sediment	Cadmium	0.073	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Calcium	11700	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6020	Sediment	Chromium	6.73	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Cobalt	3.91	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Copper	10.9	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Iron	13900	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6020	Sediment	Lead	5.35	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Magnesium	4990	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Manganese	231	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Nickel	7.3	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Potassium	1120	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Silver	0.052	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Sodium	32	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Thallium	0.093	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6020	Sediment	Vanadium	10.1	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA2	2011-05-05	EPA6010B	Sediment	Zinc	40.9	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1498	0.5829	-2.2915	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Aluminum	6180	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Antimony	0.18	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6020	Sediment	Arsenic	6.43	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Barium	65.6	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6020	Sediment	Cadmium	0.093	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Calcium	11800	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6020	Sediment	Chromium	7.12	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Cobalt	4.02	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Copper	8	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Iron	13700	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6020	Sediment	Lead	6.07	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Magnesium	4890	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Manganese	252	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Nickel	6.89	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Potassium	1130	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Silver	0.047	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Sodium	36	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Thallium	0.11	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6020	Sediment	Vanadium	11.6	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBA	CR-SBA3	2011-05-05	EPA6010B	Sediment	Zinc	39.2	TRUE	mg/kg	63.03294256	0.844849041	-755.5700073	399339	5300859	OU 2 Middle Laucustrine CSM Unit	3.1134	0.5471	-2.3281	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Aluminum	5890	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Antimony	0.199	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6020	Sediment	Arsenic	6.37	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Barium	53.6	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6020	Sediment	Cadmium	0.085	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Calcium	12300	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6020	Sediment	Chromium	6.62	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Cobalt	3.82	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Copper	8.9	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Iron	13700	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6020	Sediment	Lead	5.8	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Magnesium	4920	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Manganese	275	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Nickel	6.93	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Potassium	1040	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Silver	0.043	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Sodium	32	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Thallium	0.09	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6020	Sediment	Vanadium	10.5	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB1	2011-05-05	EPA6010B	Sediment	Zinc	38.7	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0064	0.4113	-2.2939	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Aluminum	6290	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Antimony	0.153	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6020	Sediment	Arsenic	6.02	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Barium	54.7	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6020	Sediment	Cadmium	0.073	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Calcium	10700	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6020	Sediment	Chromium	7.76	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Cobalt	4.25	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Copper	8.3	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Iron	14100	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6020	Sediment	Lead	5.86	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Magnesium	5170	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Manganese	254	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Nickel	6.86	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Potassium	1580	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Silver	0.049	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Sodium	58	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Thallium	0.098	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6020	Sediment	Vanadium	11.7	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB2	2011-05-05	EPA6010B	Sediment	Zinc	38.9	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.5232	0.7793	-2.0632	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Aluminum	6250	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Antimony	0.224	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6020	Sediment	Arsenic	5.47	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Barium	70.9	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6020	Sediment	Cadmium	0.087	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Calcium	14200	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6020	Sediment	Chromium	6.56	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Cobalt	4.08	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Copper	8.8	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6020	Sediment	Lead	6.01	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Magnesium	6030	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Manganese	268	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Nickel	7.28	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Potassium	1260	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Silver	0.05	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Sodium	47	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Thallium	0.091	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6020	Sediment	Vanadium	10.9	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBB	CR-SBB3	2011-05-05	EPA6010B	Sediment	Zinc	39.5	TRUE	mg/kg	63.03294256	0.844849041	-737.0700073	399299	5300769	OU 2 Middle Laucustrine CSM Unit	3.0735	0.66	-2.4762	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Aluminum	5960	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Antimony	0.228	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6020	Sediment	Arsenic	5.65	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Barium	56.9	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6020	Sediment	Cadmium	0.086	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Calcium	12000	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6020	Sediment	Chromium	7.2	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Cobalt	4.07	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Copper	8.8	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6020	Sediment	Lead	5.91	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Magnesium	4920	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Manganese	248	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Nickel	7.22	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Potassium	1080	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Silver	0.045	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Sodium	41	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Thallium	0.082	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6020	Sediment	Vanadium	10.8	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC1	2011-05-05	EPA6010B	Sediment	Zinc	40.2	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1498	0.6754	-2.1877	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Aluminum	5510	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Antimony	0.234	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6020	Sediment	Arsenic	6.7	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Barium	52.8	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6020	Sediment	Cadmium	0.079	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Calcium	11100	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6020	Sediment	Chromium	6.68	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Cobalt	3.66	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Copper	7.6	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Iron	12900	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6020	Sediment	Lead	6.06	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Magnesium	4630	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Manganese	234	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Nickel	6.33	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Potassium	1060	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Silver	0.065	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Sodium	33	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Thallium	0.105	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6020	Sediment	Vanadium	10.4	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC2	2011-05-05	EPA6010B	Sediment	Zinc	35.8	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	3.1602	0.489	-2.3432	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Aluminum	5580	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Antimony	0.178	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6020	Sediment	Arsenic	6.78	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Barium	58.9	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6020	Sediment	Cadmium	0.113	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Calcium	10500	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6020	Sediment	Chromium	7.05	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Cobalt	3.29	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Copper	8	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6020	Sediment	Lead	5.23	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Magnesium	4570	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Manganese	226	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Nickel	6.61	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Potassium	1010	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Silver	0.051	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Sodium	33	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Thallium	0.137	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6020	Sediment	Vanadium	10.7	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBC	CR-SBC3	2011-05-05	EPA6010B	Sediment	Zinc	37.2	TRUE	mg/kg	63.03294256	0.844849041	-751.5599976	399319	5300789	OU 2 Middle Laucustrine CSM Unit	2.9878	0.335	-2.3354	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Aluminum	5690	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Antimony	0.224	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6020	Sediment	Arsenic	5.57	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Barium	45	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6020	Sediment	Cadmium	0.089	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Calcium	11700	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6020	Sediment	Chromium	6.77	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Cobalt	3.37	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Copper	7.8	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Iron	13900	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6020	Sediment	Lead	5.4	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Magnesium	4620	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Manganese	232	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Nickel	6.46	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Potassium	952	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Silver	0.04	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Sodium	36	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Thallium	0.087	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6020	Sediment	Vanadium	9.97	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD1	2011-05-05	EPA6010B	Sediment	Zinc	36.5	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1662	0.4939	-2.1838	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Aluminum	5500	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Antimony	0.161	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6020	Sediment	Arsenic	6.42	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Barium	52.6	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6020	Sediment	Cadmium	0.099	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Calcium	12700	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6020	Sediment	Chromium	6.63	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Cobalt	3.51	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Copper	6.9	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Iron	12600	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6020	Sediment	Lead	5.85	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Magnesium	5300	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Manganese	286	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Nickel	6.35	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Potassium	1060	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Silver	0.04	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Sodium	29	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Thallium	0.091	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6020	Sediment	Vanadium	10.7	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD2	2011-05-05	EPA6010B	Sediment	Zinc	36.2	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.1147	0.3395	-2.4604	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Aluminum	5510	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Antimony	0.183	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6020	Sediment	Arsenic	6.19	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Barium	46	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6020	Sediment	Cadmium	0.1	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Calcium	9520	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6020	Sediment	Chromium	7.44	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Cobalt	4.1	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Copper	7.5	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Iron	13500	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6020	Sediment	Lead	5.82	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Magnesium	4640	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Manganese	226	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Nickel	6.44	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Potassium	1050	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Silver	0.109	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Sodium	29	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Thallium	0.1	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6020	Sediment	Vanadium	10.8	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBD	CR-SBD3	2011-05-05	EPA6010B	Sediment	Zinc	37.5	TRUE	mg/kg	63.03294256	0.844849041	-756.5	399329	5300809	OU 2 Middle Laucustrine CSM Unit	3.2887	0.3639	-1.9603	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Aluminum	5300	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Antimony	0.282	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6020	Sediment	Arsenic	5.94	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Barium	48.8	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6020	Sediment	Cadmium	0.087	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Calcium	11600	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6020	Sediment	Chromium	7.64	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Cobalt	3.69	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Copper	8.1	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Iron	14300	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6020	Sediment	Lead	6.22	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Magnesium	4590	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Manganese	238	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Nickel	6.72	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Potassium	1020	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Silver	0.041	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Sodium	28	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Thallium	0.084	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6020	Sediment	Vanadium	11.8	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE1	2011-05-05	EPA6010B	Sediment	Zinc	36.1	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.0964	0.3219	-2.1565	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Aluminum	5750	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Antimony	0.163	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6020	Sediment	Arsenic	5.63	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Barium	46.4	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6020	Sediment	Cadmium	0.084	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Calcium	12000	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6020	Sediment	Chromium	6.7	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Cobalt	3.3	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Copper	9.1	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Iron	12800	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6020	Sediment	Lead	6.01	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Magnesium	4760	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Manganese	224	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Nickel	6.5	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Potassium	1060	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Silver	0.051	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Sodium	56	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Thallium	0.074	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6020	Sediment	Vanadium	9.98	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE2	2011-05-05	EPA6010B	Sediment	Zinc	34	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1	0.5942	-2.2464	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Aluminum	5560	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Antimony	0.178	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6020	Sediment	Arsenic	6.34	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Barium	56.5	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6020	Sediment	Cadmium	0.082	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Calcium	10700	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6020	Sediment	Chromium	6.79	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Cobalt	3.56	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Copper	7.8	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Iron	12500	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6020	Sediment	Lead	5.95	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Magnesium	4350	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Manganese	217	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Nickel	7.46	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Potassium	1110	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Silver	0.037	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Sodium	38	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Thallium	0.094	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6020	Sediment	Vanadium	11.7	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SBE	CR-SBE3	2011-05-05	EPA6010B	Sediment	Zinc	35.2	TRUE	mg/kg	63.03294256	0.844849041	-744.4699707	399319	5300819	OU 2 Middle Laucustrine CSM Unit	3.1896	0.3904	-2.2397	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Aluminum	7680	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Antimony	0.226	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6020	Sediment	Arsenic	9.71	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Barium	54.3	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6020	Sediment	Cadmium	0.131	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Calcium	4350	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6020	Sediment	Chromium	8.05	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Cobalt	3.89	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Copper	8.8	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Iron	15700	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6020	Sediment	Lead	6.64	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Magnesium	5960	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Manganese	288	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Nickel	7.49	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Potassium	1510	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Silver	0.041	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Sodium	55	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Thallium	0.124	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6020	Sediment	Vanadium	12.1	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA1	2011-05-02	EPA6010B	Sediment	Zinc	43.5	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.544	0.3227	-1.4142	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Aluminum	8580	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Antimony	0.242	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6020	Sediment	Arsenic	9.92	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Barium	50.6	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6020	Sediment	Cadmium	0.087	FALSE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Calcium	3620	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6020	Sediment	Chromium	8.87	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Cobalt	4.15	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Copper	10.4	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Iron	15900	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6020	Sediment	Lead	6.74	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Magnesium	6430	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Manganese	321	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Nickel	7.98	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Potassium	1730	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Silver	0.056	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Sodium	60	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Thallium	0.101	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6020	Sediment	Vanadium	12.1	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA2	2011-05-02	EPA6010B	Sediment	Zinc	39.6	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.9373	0.5026	-1.1648	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Aluminum	8830	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Antimony	0.199	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6020	Sediment	Arsenic	10.2	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Barium	66.7	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6020	Sediment	Cadmium	0.08	FALSE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Calcium	11300	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6020	Sediment	Chromium	8.32	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Cobalt	4.39	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Copper	10.8	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Iron	16400	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6020	Sediment	Lead	6.38	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Magnesium	6770	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Manganese	298	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Nickel	8.7	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Potassium	1820	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Silver	0.044	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Sodium	75	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Thallium	0.103	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6020	Sediment	Vanadium	11.7	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCA	CR-SCA3	2011-05-02	EPA6010B	Sediment	Zinc	41.7	TRUE	mg/kg	96.56194279	3.196966272	-724.6599731	355068	5311005	OU 2 Lower Laucustrine CSM Unit	3.625	0.6869	-2.3038	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Aluminum	8210	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Antimony	0.187	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6020	Sediment	Arsenic	10.5	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Barium	50.1	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6020	Sediment	Cadmium	0.148	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Calcium	7790	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6020	Sediment	Chromium	8.23	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Cobalt	3.96	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Copper	8.9	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Iron	15400	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6020	Sediment	Lead	6.83	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Magnesium	6480	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Manganese	280	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Nickel	7.69	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Potassium	1510	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Sodium	59	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Thallium	0.115	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6020	Sediment	Vanadium	11.5	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB1	2011-05-02	EPA6010B	Sediment	Zinc	45.3	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.4409	0.1958	-1.8908	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Aluminum	8470	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Antimony	0.241	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6020	Sediment	Arsenic	10.3	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Barium	51.3	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6020	Sediment	Cadmium	0.096	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Calcium	14900	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6020	Sediment	Chromium	8.8	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Cobalt	4.28	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Copper	10.2	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Iron	16100	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6020	Sediment	Lead	6.41	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Magnesium	6670	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Manganese	305	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Nickel	8.15	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Potassium	1520	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Silver	0.049	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Sodium	68	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Thallium	0.091	FALSE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6020	Sediment	Vanadium	12.3	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB2	2011-05-02	EPA6010B	Sediment	Zinc	39.9	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.6117	0.5534	-2.4213	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Aluminum	8550	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Antimony	0.203	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6020	Sediment	Arsenic	11	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Barium	51.5	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6020	Sediment	Cadmium	0.096	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Calcium	17700	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6020	Sediment	Chromium	8.44	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Cobalt	4.08	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Copper	9.9	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Iron	16100	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6020	Sediment	Lead	6.79	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Magnesium	7090	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Manganese	307	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Nickel	7.93	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Potassium	1530	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Silver	0.051	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Sodium	70	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Thallium	0.089	FALSE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6020	Sediment	Vanadium	11.9	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCB	CR-SCB3	2011-05-02	EPA6010B	Sediment	Zinc	39.4	TRUE	mg/kg	96.56194279	3.196966272	-725.0700073	355098	5311015	OU 2 Lower Laucustrine CSM Unit	3.5345	0.5091	-2.6754	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Aluminum	8060	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Antimony	0.195	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6020	Sediment	Arsenic	8.18	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Barium	50.4	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6020	Sediment	Cadmium	0.155	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Calcium	3460	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6020	Sediment	Chromium	8.09	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Cobalt	3.98	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Copper	8.2	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Iron	16200	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6020	Sediment	Lead	6.94	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Magnesium	6180	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Manganese	238	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Nickel	8.09	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Potassium	1420	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Silver	0.026	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Sodium	63	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Thallium	0.154	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6020	Sediment	Vanadium	12.1	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC1	2011-05-02	EPA6010B	Sediment	Zinc	52.8	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.5163	0.1328	-1.0191	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Aluminum	9110	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Antimony	0.171	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6020	Sediment	Arsenic	10	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Barium	61.8	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6020	Sediment	Cadmium	0.101	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Calcium	2440	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6020	Sediment	Chromium	8.54	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Cobalt	4.47	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Copper	10.2	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Iron	16900	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6020	Sediment	Lead	6.57	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Magnesium	6530	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Manganese	284	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Nickel	8.25	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Potassium	1990	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Silver	0.048	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Sodium	70	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Thallium	0.112	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6020	Sediment	Vanadium	13	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC2	2011-05-02	EPA6010B	Sediment	Zinc	44.2	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.8464	0.3207	-0.8339	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Aluminum	9460	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Antimony	0.192	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6020	Sediment	Arsenic	11.1	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Barium	67.5	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6020	Sediment	Cadmium	0.074	FALSE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Calcium	3320	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6020	Sediment	Chromium	8.95	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Cobalt	4.47	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Copper	10.7	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Iron	17200	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6020	Sediment	Lead	7	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Magnesium	6830	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Manganese	313	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Nickel	8.65	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Potassium	2210	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Silver	0.057	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Sodium	68	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Thallium	0.111	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6020	Sediment	Vanadium	13.6	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCC	CR-SCC3	2011-05-02	EPA6010B	Sediment	Zinc	43.1	TRUE	mg/kg	96.56194279	3.196966272	-797.2199707	355238	5310995	OU 2 Lower Laucustrine CSM Unit	3.938	0.4445	-1.1859	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Aluminum	8145	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Antimony	0.153	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6020	Sediment	Arsenic	8.15	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Barium	54.4	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Beryllium	0.285	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6020	Sediment	Cadmium	0.1865	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Calcium	1935	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6020	Sediment	Chromium	8.69	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Cobalt	3.765	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Copper	7.25	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Iron	15900	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6020	Sediment	Lead	7.57	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Magnesium	6120	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Manganese	218.5	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Nickel	7.785	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Potassium	1465	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Silver	0.0245	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Sodium	54.5	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Thallium	0.1885	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6020	Sediment	Vanadium	11.8	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD1-1	2011-05-02	EPA6010B	Sediment	Zinc	64.3	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.3302	-0.2084	-0.5182	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Aluminum	9910	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Antimony	0.193	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6020	Sediment	Arsenic	8.27	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Barium	75.6	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6020	Sediment	Cadmium	0.115	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Calcium	1940	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6020	Sediment	Chromium	8.73	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Cobalt	4.48	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Copper	10.6	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Iron	17900	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6020	Sediment	Lead	6.9	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Magnesium	7020	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Manganese	279	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Nickel	8.45	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Potassium	2350	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Silver	0.043	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Sodium	79	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Thallium	0.131	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6020	Sediment	Vanadium	14	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD2	2011-05-02	EPA6010B	Sediment	Zinc	49.5	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	3.7068	0.2101	-0.5255	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Aluminum	9930	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Antimony	0.178	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6020	Sediment	Arsenic	9.09	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Barium	82.2	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6020	Sediment	Cadmium	0.084	FALSE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Calcium	1930	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6020	Sediment	Chromium	10.1	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Cobalt	4.58	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Copper	10.8	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Iron	18100	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6020	Sediment	Lead	6.85	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Magnesium	7010	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Manganese	317	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Nickel	8.63	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Potassium	2550	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Silver	0.054	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Sodium	68	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Thallium	0.134	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6020	Sediment	Vanadium	15.1	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCD	CR-SCD3	2011-05-02	EPA6010B	Sediment	Zinc	45.7	TRUE	mg/kg	96.56194279	3.196966272	-860.0200195	355398	5311005	OU 2 Lower Laucustrine CSM Unit	4.0287	0.4742	-0.5889	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Aluminum	8900	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Antimony	0.164	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6020	Sediment	Arsenic	8.14	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Barium	55.3	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6020	Sediment	Cadmium	0.233	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Calcium	1860	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6020	Sediment	Chromium	8.43	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Cobalt	3.94	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Copper	8.1	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Iron	16600	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6020	Sediment	Lead	8.71	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Magnesium	6410	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Manganese	239	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Nickel	8.14	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Potassium	1720	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Silver	0.027	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Sodium	70	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Thallium	0.193	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6020	Sediment	Vanadium	12.3	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE1	2011-05-02	EPA6010B	Sediment	Zinc	70.1	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.1737	-0.3318	-0.305	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Aluminum	9750	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Antimony	0.211	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6020	Sediment	Arsenic	8.91	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Barium	68.4	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6020	Sediment	Cadmium	0.132	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Calcium	1870	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6020	Sediment	Chromium	8.99	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Cobalt	4.23	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Copper	10	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Iron	17100	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6020	Sediment	Lead	7.29	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Magnesium	6760	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Manganese	287	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Nickel	8.07	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Potassium	2260	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Silver	0.044	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Sodium	67	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Thallium	0.132	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6020	Sediment	Vanadium	14.2	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE2	2011-05-02	EPA6010B	Sediment	Zinc	47.3	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.7698	0.1217	-0.4833	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Aluminum	9870	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6020	Sediment	Arsenic	9.61	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Barium	65.7	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6020	Sediment	Cadmium	0.08	FALSE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Calcium	1840	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6020	Sediment	Chromium	9.18	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Cobalt	4.44	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Copper	11	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Iron	17600	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6020	Sediment	Lead	6.85	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Magnesium	6750	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Manganese	355	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Nickel	8.16	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Potassium	2240	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Silver	0.057	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Sodium	72	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Thallium	0.105	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6020	Sediment	Vanadium	13	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SCE	CR-SCE3	2011-05-02	EPA6010B	Sediment	Zinc	43.2	TRUE	mg/kg	96.56194279	3.196966272	-830.0999756	355408	5311045	OU 2 Lower Laucustrine CSM Unit	3.9604	0.4578	-0.4999	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Aluminum	10950	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Antimony	1.335	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6020	Sediment	Arsenic	5.74	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Barium	296.5	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6020	Sediment	Cadmium	5.995	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Calcium	10450	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6020	Sediment	Chromium	14.75	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Cobalt	5	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Copper	42.85	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Iron	18150	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6020	Sediment	Lead	353.5	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Magnesium	8340	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Manganese	213	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA7471A	Sediment	Mercury	0.876	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Nickel	12.5	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Potassium	1340	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Selenium	0.29	FALSE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Silver	0.477	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Sodium	137	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Thallium	0.6085	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6020	Sediment	Vanadium	18.45	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA1-1	2010-04-27	EPA6010B	Sediment	Zinc	784.5	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	-3.5052	-3.2932	-0.0641	2
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Aluminum	12100	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Antimony	0.21	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6020	Sediment	Arsenic	1.59	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Barium	124	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Beryllium	0.43	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6020	Sediment	Cadmium	0.169	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Calcium	2220	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6020	Sediment	Chromium	10.1	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Cobalt	4.1	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Copper	10.3	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Iron	14500	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6020	Sediment	Lead	5.81	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Magnesium	2860	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Manganese	146	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Nickel	8.98	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Potassium	1320	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Selenium	0.04	FALSE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Silver	0.041	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Sodium	138	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Thallium	0.111	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6020	Sediment	Vanadium	14.4	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA2	2010-04-27	EPA6010B	Sediment	Zinc	33.6	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.0068	0.446	0.6901	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Aluminum	9450	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Antimony	0.137	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6020	Sediment	Arsenic	1.58	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Barium	90.9	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6020	Sediment	Cadmium	0.095	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Calcium	2460	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6020	Sediment	Chromium	9.88	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Cobalt	4.2	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Copper	10.6	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Iron	13700	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6020	Sediment	Lead	4.96	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Magnesium	2830	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Manganese	186	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Nickel	8.45	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Potassium	1270	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Silver	0.052	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Sodium	151	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Thallium	0.096	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6020	Sediment	Vanadium	14.7	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRA	CR-SRA3	2010-04-27	EPA6010B	Sediment	Zinc	27.3	TRUE	mg/kg	58.83024903	40.9311299	790.9799805	423812	5393311	OU 1 South	3.4652	0.9523	0.5758	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Aluminum	10500	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Antimony	1.3	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6020	Sediment	Arsenic	6.67	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Barium	307	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Beryllium	0.46	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6020	Sediment	Cadmium	5.67	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Calcium	10600	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6020	Sediment	Chromium	12.8	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Cobalt	4.6	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Copper	33.7	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Iron	17300	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6020	Sediment	Lead	353	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Magnesium	8240	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Manganese	218	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA7471A	Sediment	Mercury	0.715	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Nickel	11.3	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Potassium	1230	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Selenium	0.13	FALSE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Silver	0.38	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Sodium	129	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Thallium	0.462	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6020	Sediment	Vanadium	17.1	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB1	2010-04-27	EPA6010B	Sediment	Zinc	693	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	-3.491	-3.2516	-0.3904	2
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Aluminum	9840	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Antimony	0.276	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6020	Sediment	Arsenic	2.66	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Barium	93.1	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6020	Sediment	Cadmium	0.257	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Calcium	2700	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6020	Sediment	Chromium	10.5	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Cobalt	4.1	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Copper	10.9	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Iron	14200	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6020	Sediment	Lead	9.58	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Magnesium	3050	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Manganese	147	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Nickel	8.69	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Potassium	1330	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Silver	0.064	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Sodium	145	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Thallium	0.103	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6020	Sediment	Vanadium	15.3	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB2	2010-04-27	EPA6010B	Sediment	Zinc	53.1	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	2.3845	-0.1168	0.5013	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Aluminum	7450	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Antimony	0.141	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6020	Sediment	Arsenic	1.54	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Barium	66.5	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6020	Sediment	Cadmium	0.15	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Calcium	2780	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6020	Sediment	Chromium	9.79	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Cobalt	4.7	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Copper	10.5	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Iron	15100	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6020	Sediment	Lead	5.23	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Magnesium	3230	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Manganese	168	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Nickel	9.81	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Potassium	1350	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Silver	0.04	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Sodium	145	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Thallium	0.091	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6020	Sediment	Vanadium	14.7	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRB	CR-SRB3	2010-04-27	EPA6010B	Sediment	Zinc	32.6	TRUE	mg/kg	58.83024903	40.9311299	779.5	423812	5393331	OU 1 South	3.4619	0.7504	0.6081	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Aluminum	7870	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Antimony	0.319	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6020	Sediment	Arsenic	1.68	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Barium	72.7	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6020	Sediment	Cadmium	0.915	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Calcium	2700	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6020	Sediment	Chromium	10.9	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Cobalt	3.9	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Copper	13.9	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Iron	13300	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6020	Sediment	Lead	47.4	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Magnesium	3160	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Manganese	118	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA7471A	Sediment	Mercury	0.073	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Nickel	9.47	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Potassium	1290	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Silver	0.115	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Sodium	115	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Thallium	0.555	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6020	Sediment	Vanadium	14.3	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC1	2010-04-27	EPA6010B	Sediment	Zinc	150	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	0.0565	-1.8492	1.4481	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Aluminum	10600	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Antimony	1.01	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6020	Sediment	Arsenic	4.21	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Barium	268	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Beryllium	0.47	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6020	Sediment	Cadmium	6.47	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Calcium	4540	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6020	Sediment	Chromium	13.8	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Cobalt	5.2	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Copper	27.9	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Iron	16500	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6020	Sediment	Lead	312	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Magnesium	5010	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Manganese	148	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA7471A	Sediment	Mercury	0.577	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Nickel	12.9	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Potassium	1620	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Selenium	0.18	FALSE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Silver	0.32	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Sodium	138	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Thallium	0.804	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6020	Sediment	Vanadium	16.9	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC2	2010-04-27	EPA6010B	Sediment	Zinc	649	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	-3.0282	-3.2871	0.9852	2
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Aluminum	11500	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Antimony	0.14	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6020	Sediment	Arsenic	1.51	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Barium	119	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Beryllium	0.46	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6020	Sediment	Cadmium	0.258	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Calcium	2480	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6020	Sediment	Chromium	13.6	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Cobalt	5.6	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Copper	11.8	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Iron	16100	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6020	Sediment	Lead	7.52	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Magnesium	3740	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Manganese	328	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Nickel	11.8	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Potassium	2100	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Selenium	0.04	FALSE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Silver	0.04	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Sodium	135	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Thallium	0.134	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6020	Sediment	Vanadium	18.1	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRC	CR-SRC3	2010-04-27	EPA6010B	Sediment	Zinc	49.3	TRUE	mg/kg	58.83024903	40.9311299	890.4899902	423712	5392941	OU 1 South	3.1498	0.6099	1.1491	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Aluminum	11600	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Antimony	0.114	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6020	Sediment	Arsenic	1.78	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Barium	113	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Beryllium	0.48	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6020	Sediment	Cadmium	0.188	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Calcium	2790	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6020	Sediment	Chromium	13.4	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Cobalt	5.4	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Copper	14.1	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Iron	16900	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6020	Sediment	Lead	9.32	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Magnesium	3830	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Manganese	308	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Nickel	12	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Potassium	2010	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Silver	0.059	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Sodium	136	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Thallium	0.134	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6020	Sediment	Vanadium	18.9	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD1	2010-04-27	EPA6010B	Sediment	Zinc	51.5	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	2.8928	0.3603	1.0159	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Aluminum	11800	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Antimony	0.087	FALSE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6020	Sediment	Arsenic	1.7	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Barium	127	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6020	Sediment	Cadmium	0.139	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Calcium	3120	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6020	Sediment	Chromium	12.3	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Cobalt	5.4	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Copper	13.8	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Iron	16700	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6020	Sediment	Lead	6.81	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Magnesium	3810	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Manganese	318	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Nickel	11.9	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Potassium	1940	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Selenium	0.04	FALSE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Silver	0.089	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Sodium	156	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Thallium	0.125	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6020	Sediment	Vanadium	18.7	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD2	2010-04-27	EPA6010B	Sediment	Zinc	47.4	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.3283	0.9961	0.7022	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Aluminum	12600	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Antimony	0.094	FALSE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6020	Sediment	Arsenic	1.85	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Barium	134	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6020	Sediment	Cadmium	0.139	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Calcium	3190	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6020	Sediment	Chromium	13.4	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Cobalt	5.6	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Copper	14.4	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Iron	17100	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6020	Sediment	Lead	6.66	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Magnesium	3880	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Manganese	267	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Nickel	12.2	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Potassium	1860	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Silver	0.113	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Sodium	179	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Thallium	0.12	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6020	Sediment	Vanadium	19	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRD	CR-SRD3	2010-04-27	EPA6010B	Sediment	Zinc	48.9	TRUE	mg/kg	58.83024903	40.9311299	760.5200195	423842	5393101	OU 1 South	3.2912	0.9086	0.6507	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Aluminum	7300	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Antimony	0.125	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6020	Sediment	Arsenic	1.76	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Barium	84.8	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6020	Sediment	Cadmium	0.204	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Calcium	11500	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6020	Sediment	Chromium	12.9	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Cobalt	5.1	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Iron	15400	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6020	Sediment	Lead	7.6	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Magnesium	5940	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Manganese	218	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Potassium	1320	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Silver	0.063	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Sodium	165	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Thallium	0.132	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6020	Sediment	Vanadium	17.9	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE1	2010-04-27	EPA6010B	Sediment	Zinc	46.5	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	2.6135	0.2483	-0.6852	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Aluminum	7600	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Antimony	0.117	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6020	Sediment	Arsenic	1.86	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Barium	96.1	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6020	Sediment	Cadmium	0.162	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Calcium	13500	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6020	Sediment	Chromium	14.2	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Cobalt	5.5	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Copper	14.4	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Iron	16400	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6020	Sediment	Lead	5.62	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Magnesium	6670	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Manganese	254	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Nickel	13.1	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Potassium	1410	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Silver	0.06	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Sodium	196	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Thallium	0.133	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6020	Sediment	Vanadium	19.6	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE2	2010-04-27	EPA6010B	Sediment	Zinc	43.9	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1275	0.807	-0.9551	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Aluminum	8130	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Antimony	0.14	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6020	Sediment	Arsenic	2.03	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Barium	104	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6020	Sediment	Cadmium	0.158	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Calcium	14200	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6020	Sediment	Chromium	14.9	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Cobalt	5.8	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Copper	15.5	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Iron	16700	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6020	Sediment	Lead	5.72	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Magnesium	7020	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Manganese	249	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Nickel	13.9	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Potassium	1540	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Silver	0.066	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Sodium	200	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Thallium	0.142	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6020	Sediment	Vanadium	21.2	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SRE	CR-SRE3	2010-04-27	EPA6010B	Sediment	Zinc	46.4	TRUE	mg/kg	58.83024903	40.9311299	843.789978	423752	5392911	OU 1 South	3.1191	0.6972	-1.017	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Aluminum	6470	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Antimony	0.156	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6020	Sediment	Arsenic	4.78	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Barium	59.5	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6020	Sediment	Cadmium	0.115	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Calcium	8060	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6020	Sediment	Chromium	12.2	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Cobalt	4.53	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Copper	8.6	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Iron	13200	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6020	Sediment	Lead	5.59	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Magnesium	5250	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Manganese	241	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Nickel	8.53	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Potassium	1270	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Silver	0.047	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Sodium	149	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Thallium	0.112	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6020	Sediment	Vanadium	14.7	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA1	2011-05-01	EPA6010B	Sediment	Zinc	37.5	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.6394	0.8963	-1.3045	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Aluminum	6540	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Antimony	0.146	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6020	Sediment	Arsenic	5.26	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Barium	63.5	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6020	Sediment	Cadmium	0.129	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Calcium	9210	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6020	Sediment	Chromium	8.81	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Cobalt	4.26	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Copper	9.2	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Iron	13600	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6020	Sediment	Lead	6.19	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Magnesium	5170	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Manganese	245	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Nickel	7.78	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Potassium	1340	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Silver	0.047	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Sodium	131	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Thallium	0.127	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6020	Sediment	Vanadium	13.8	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA2	2011-05-01	EPA6010B	Sediment	Zinc	36.3	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.2068	0.6342	-1.5885	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Aluminum	6780	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Antimony	0.162	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6020	Sediment	Arsenic	5.31	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Barium	64.1	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6020	Sediment	Cadmium	0.103	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Calcium	9390	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6020	Sediment	Chromium	8.48	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Cobalt	4.35	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Copper	8.4	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Iron	13700	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6020	Sediment	Lead	5.86	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Magnesium	5620	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Manganese	254	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Nickel	7.83	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Potassium	1390	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Silver	0.049	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Sodium	134	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Thallium	0.118	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6020	Sediment	Vanadium	13.8	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWA	CR-SWA3	2011-05-01	EPA6010B	Sediment	Zinc	36.4	TRUE	mg/kg	82.93168616	4.836254788	1230.930054	364391	5312314	OU 2 Lower Laucustrine CSM Unit	3.3803	0.7029	-1.7056	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Aluminum	7870	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Antimony	0.159	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6020	Sediment	Arsenic	4.65	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Barium	62.4	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6020	Sediment	Cadmium	0.301	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Calcium	3870	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6020	Sediment	Chromium	9.76	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Cobalt	4.75	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Copper	9.5	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Iron	15300	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6020	Sediment	Lead	7.9	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Magnesium	5640	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Manganese	207	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Nickel	8.92	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Potassium	1420	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Silver	0.048	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Sodium	149	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Thallium	0.166	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6020	Sediment	Vanadium	14.1	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB1	2011-05-01	EPA6010B	Sediment	Zinc	60.8	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7195	-0.2014	-0.3277	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Aluminum	6910	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Antimony	0.224	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6020	Sediment	Arsenic	5.9	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Barium	50.7	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6020	Sediment	Cadmium	0.199	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Calcium	2870	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6020	Sediment	Chromium	7.74	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Cobalt	4.38	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Copper	9.5	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Iron	14700	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6020	Sediment	Lead	6.81	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Magnesium	4820	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Manganese	206	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Nickel	6.86	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Potassium	1400	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Silver	0.031	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Sodium	103	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Thallium	0.106	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6020	Sediment	Vanadium	11.8	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB2	2011-05-01	EPA6010B	Sediment	Zinc	47	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	3.0957	0.1547	-0.44	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Aluminum	6830	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Antimony	0.226	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6020	Sediment	Arsenic	5.26	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Barium	56.5	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6020	Sediment	Cadmium	0.193	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Calcium	3470	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6020	Sediment	Chromium	7.36	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Cobalt	4.22	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Copper	8.7	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Iron	15000	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6020	Sediment	Lead	8.54	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Magnesium	4890	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Manganese	210	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Nickel	6.47	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Potassium	1390	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Silver	0.035	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Sodium	110	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Thallium	0.112	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6020	Sediment	Vanadium	13.3	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWB	CR-SWB3	2011-05-01	EPA6010B	Sediment	Zinc	54.7	TRUE	mg/kg	82.93168616	4.836254788	1521.650024	364681	5312334	OU 2 Lower Laucustrine CSM Unit	2.7595	0.0167	-0.511	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Aluminum	6660	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Antimony	0.19	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6020	Sediment	Arsenic	4.93	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Barium	50.4	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6020	Sediment	Cadmium	0.205	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Calcium	3480	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6020	Sediment	Chromium	9.04	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Cobalt	4.07	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Copper	8.3	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Iron	14600	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6020	Sediment	Lead	7.89	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Magnesium	5120	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Manganese	183	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Nickel	7.49	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Potassium	1330	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Silver	0.035	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Sodium	140	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Thallium	0.142	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6020	Sediment	Vanadium	14.5	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC1	2011-05-01	EPA6010B	Sediment	Zinc	50.8	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.0849	0.0423	-0.425	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Aluminum	5840	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Antimony	0.15	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6020	Sediment	Arsenic	5.36	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Barium	49.8	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6020	Sediment	Cadmium	0.134	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Calcium	3780	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6020	Sediment	Chromium	5.9	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Cobalt	3.57	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Copper	11.4	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Iron	14600	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6020	Sediment	Lead	4.97	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Magnesium	4610	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Manganese	240	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Nickel	5.41	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Potassium	1230	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Silver	0.028	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Sodium	81	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Thallium	0.086	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6020	Sediment	Vanadium	11.5	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC2	2011-05-01	EPA6010B	Sediment	Zinc	37.9	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	2.9866	0.4615	-0.9553	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Aluminum	5300	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Antimony	0.122	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Barium	43.6	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Beryllium	0.255	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6020	Sediment	Cadmium	0.08	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Calcium	5205	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6020	Sediment	Chromium	5.5	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Cobalt	3.76	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Copper	5.45	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Iron	12450	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6020	Sediment	Lead	4.57	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Magnesium	3925	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Manganese	212	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Nickel	4.875	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Potassium	1053	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Silver	0.0235	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Sodium	96.5	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Thallium	0.071	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6020	Sediment	Vanadium	10.65	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWC	CR-SWC3-1	2011-05-01	EPA6010B	Sediment	Zinc	30.55	TRUE	mg/kg	82.93168616	4.836254788	1473.780029	364631	5312354	OU 2 Lower Laucustrine CSM Unit	3.3576	0.6769	-1.1567	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Aluminum	6990	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Antimony	0.166	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6020	Sediment	Arsenic	7.08	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Barium	57.9	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6020	Sediment	Cadmium	0.08	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Calcium	8980	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6020	Sediment	Chromium	8.24	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Cobalt	3.95	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Copper	7.9	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Iron	14300	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6020	Sediment	Lead	6.06	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Magnesium	6160	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Manganese	264	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Nickel	7.43	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Potassium	1340	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Silver	0.036	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Sodium	120	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Thallium	0.081	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6020	Sediment	Vanadium	12.4	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD1	2011-05-01	EPA6010B	Sediment	Zinc	33.8	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5357	0.6783	-1.9381	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Aluminum	6680	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Antimony	0.149	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6020	Sediment	Arsenic	5.33	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Barium	53.8	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6020	Sediment	Cadmium	0.071	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Calcium	11900	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6020	Sediment	Chromium	6.79	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Cobalt	3.74	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Copper	8.9	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Iron	13800	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6020	Sediment	Lead	4.86	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Magnesium	6360	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Manganese	256	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Nickel	6.71	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Potassium	1340	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Sodium	113	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Thallium	0.078	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6020	Sediment	Vanadium	11	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD2	2011-05-01	EPA6010B	Sediment	Zinc	33.5	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.5266	0.886	-2.1745	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Aluminum	7010	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Antimony	0.134	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6020	Sediment	Arsenic	5.24	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Barium	58.5	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6020	Sediment	Cadmium	0.082	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Calcium	9700	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6020	Sediment	Chromium	7.83	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Cobalt	4	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Copper	7.2	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Iron	14000	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6020	Sediment	Lead	5.68	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Magnesium	6030	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Manganese	253	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Nickel	7.59	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Potassium	1370	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Silver	0.034	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Sodium	121	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Thallium	0.095	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6020	Sediment	Vanadium	11.5	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWD	CR-SWD3	2011-05-01	EPA6010B	Sediment	Zinc	33.3	TRUE	mg/kg	82.93168616	4.836254788	1609.75	364771	5312314	OU 2 Lower Laucustrine CSM Unit	3.6123	0.8506	-1.9141	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Aluminum	6280	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Antimony	0.142	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6020	Sediment	Arsenic	7.49	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Barium	46.9	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6020	Sediment	Cadmium	0.134	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Calcium	8660	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6020	Sediment	Chromium	7.45	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Cobalt	3.68	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Copper	7.7	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Iron	12600	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6020	Sediment	Lead	9.04	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Magnesium	5440	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Manganese	206	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Nickel	7.15	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Potassium	1120	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Silver	0.045	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Sodium	96	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Thallium	0.109	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6020	Sediment	Vanadium	12.1	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE1	2011-05-01	EPA6010B	Sediment	Zinc	32.5	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	3.1675	0.2286	-1.8804	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Aluminum	7010	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Antimony	0.166	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6020	Sediment	Arsenic	5.25	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Barium	54.2	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6020	Sediment	Cadmium	0.195	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Calcium	8070	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6020	Sediment	Chromium	9.34	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Cobalt	4.09	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Iron	14600	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6020	Sediment	Lead	6.17	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Magnesium	5830	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Manganese	225	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Nickel	7.65	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Potassium	1350	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Silver	0.041	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Sodium	135	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Thallium	0.129	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6020	Sediment	Vanadium	12.4	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE2	2011-05-01	EPA6010B	Sediment	Zinc	44.6	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.9597	0.4355	-1.3044	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Aluminum	6990	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Antimony	0.153	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6020	Sediment	Arsenic	5.23	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Barium	56.7	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6020	Sediment	Cadmium	0.235	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Calcium	7990	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6020	Sediment	Chromium	8.7	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Cobalt	3.73	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Copper	8.2	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Iron	13800	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6020	Sediment	Lead	6.58	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Magnesium	5570	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Manganese	238	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Nickel	7.24	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Potassium	1260	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Silver	0.037	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Sodium	134	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6010B	Sediment	Thallium	0.127	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6020	Sediment	Vanadium	13.9	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-SWE	CR-SWE3	2011-05-01	EPA6020	Sediment	Zinc	41.9	TRUE	mg/kg	82.93168616	4.836254788	1485.25	364651	5312184	OU 2 Lower Laucustrine CSM Unit	2.8998	0.1368	-1.3737	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Aluminum	12800	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Antimony	0.631	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6020	Sediment	Arsenic	4.54	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Barium	161	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Beryllium	0.47	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6020	Sediment	Cadmium	3.14	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Calcium	5270	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6020	Sediment	Chromium	25.9	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Cobalt	8.5	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Copper	43.7	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Iron	23600	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6020	Sediment	Lead	148	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Magnesium	7920	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Manganese	464	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA7471A	Sediment	Mercury	0.52	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Nickel	23	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Potassium	2100	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Silver	0.595	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Sodium	202	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Thallium	0.598	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6020	Sediment	Vanadium	30.2	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA1	2011-04-23	EPA6010B	Sediment	Zinc	406	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-0.9826	-2.2161	1.4237	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Aluminum	9325	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Antimony	0.47	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6020	Sediment	Arsenic	4.035	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Barium	156.5	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6020	Sediment	Cadmium	2.845	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Calcium	5495	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6020	Sediment	Chromium	17.6	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Cobalt	6.085	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Copper	23.7	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Iron	17950	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6020	Sediment	Lead	156	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Magnesium	6425	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Manganese	384.5	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA7471A	Sediment	Mercury	0.3445	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Nickel	15.7	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Potassium	2120	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Selenium	0.25	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Silver	0.2275	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Sodium	105	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Thallium	0.275	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6020	Sediment	Vanadium	21.85	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA2-1	2011-04-23	EPA6010B	Sediment	Zinc	339.5	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	-1.277	-2.4203	0.8305	2
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Aluminum	8450	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Antimony	0.076	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6020	Sediment	Arsenic	1.47	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Barium	90.2	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6020	Sediment	Cadmium	0.321	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Calcium	3180	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6020	Sediment	Chromium	15.6	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Cobalt	6	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Copper	14.8	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Iron	16800	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6020	Sediment	Lead	12.7	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Magnesium	4580	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Manganese	317	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA7471A	Sediment	Mercury	0.028	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Nickel	15.2	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Potassium	2080	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Silver	0.097	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Sodium	75	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Thallium	0.122	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6020	Sediment	Vanadium	19.2	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBA	CR-WBA3	2011-04-23	EPA6010B	Sediment	Zinc	61.3	TRUE	mg/kg	49.64972157	47.30683364	-2687.949951	420723	5386602	OU 2 Transitional CSM Unit	2.3215	-0.4127	1.0605	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Aluminum	10200	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Antimony	0.469	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6020	Sediment	Arsenic	4.76	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Barium	180	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6020	Sediment	Cadmium	3.48	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Calcium	5390	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6020	Sediment	Chromium	20.3	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Cobalt	6.85	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Copper	27.7	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Iron	20000	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6020	Sediment	Lead	184	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Magnesium	6920	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Manganese	367	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA7471A	Sediment	Mercury	0.417	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Nickel	18.8	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Potassium	2010	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Silver	0.307	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Sodium	145	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Thallium	0.485	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6020	Sediment	Vanadium	24.3	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB1	2011-04-23	EPA6010B	Sediment	Zinc	443	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	-1.4634	-2.477	0.9752	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Aluminum	6060	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Antimony	0.172	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6020	Sediment	Arsenic	1.91	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Barium	77.6	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6020	Sediment	Cadmium	0.605	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Calcium	2830	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6020	Sediment	Chromium	11.9	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Cobalt	4.48	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Copper	11.1	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Iron	12800	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6020	Sediment	Lead	26.6	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Magnesium	3600	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Manganese	197	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA7471A	Sediment	Mercury	0.047	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Nickel	11.3	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Potassium	1600	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Silver	0.082	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Sodium	70	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Thallium	0.125	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6020	Sediment	Vanadium	15.6	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB2	2011-04-23	EPA6010B	Sediment	Zinc	71.2	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	1.082	-1.3351	0.8826	2
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Aluminum	5360	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Antimony	0.08	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6020	Sediment	Arsenic	1.44	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Barium	56.7	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6020	Sediment	Cadmium	0.185	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Calcium	2560	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6020	Sediment	Chromium	11.9	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Cobalt	4.12	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Copper	9.3	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Iron	11700	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6020	Sediment	Lead	5.55	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Magnesium	3120	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Manganese	180	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Nickel	10.6	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Potassium	1380	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Silver	0.059	FALSE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Sodium	66	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Thallium	0.096	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6020	Sediment	Vanadium	15.9	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBB	CR-WBB3	2011-04-23	EPA6010B	Sediment	Zinc	37.7	TRUE	mg/kg	49.64972157	47.30683364	-2721.389893	420773	5386612	OU 2 Transitional CSM Unit	3.0983	0.0526	0.5707	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Aluminum	6230	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Antimony	0.198	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6020	Sediment	Arsenic	2.01	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Barium	70.7	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6020	Sediment	Cadmium	1.44	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Calcium	2960	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6020	Sediment	Chromium	12.6	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Cobalt	4.65	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Iron	13600	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6020	Sediment	Lead	62.9	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Magnesium	3680	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Manganese	182	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA7471A	Sediment	Mercury	0.141	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Nickel	11.7	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Potassium	1220	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Silver	0.13	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Sodium	90	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Thallium	0.311	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6020	Sediment	Vanadium	15.1	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC1	2011-04-23	EPA6010B	Sediment	Zinc	184	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	-0.3842	-2.0668	1.3437	2
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Aluminum	8260	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Antimony	0.106	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6020	Sediment	Arsenic	1.71	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Barium	91.4	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6020	Sediment	Cadmium	0.248	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Calcium	3570	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6020	Sediment	Chromium	15.3	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Cobalt	5.76	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Copper	13.8	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Iron	16100	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6020	Sediment	Lead	7.62	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Magnesium	4500	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Manganese	285	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Nickel	14.6	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Potassium	2150	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Silver	0.107	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Sodium	90	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Thallium	0.111	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6020	Sediment	Vanadium	19.1	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC2	2011-04-23	EPA6010B	Sediment	Zinc	53.4	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.2781	0.5219	0.5556	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Aluminum	9500	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Antimony	0.064	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6020	Sediment	Arsenic	1.68	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Barium	100	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6020	Sediment	Cadmium	0.166	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Calcium	3470	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6020	Sediment	Chromium	19.6	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Cobalt	6.26	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Copper	15.2	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Iron	17100	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6020	Sediment	Lead	7.14	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Magnesium	5000	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Manganese	337	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Nickel	16.9	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Potassium	2480	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Silver	0.103	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Sodium	103	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Thallium	0.131	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6020	Sediment	Vanadium	24.1	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBC	CR-WBC3	2011-04-23	EPA6010B	Sediment	Zinc	51.9	TRUE	mg/kg	49.64972157	47.30683364	-2573.340088	420693	5386752	OU 2 Transitional CSM Unit	3.7801	0.7525	0.7321	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Aluminum	5740	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Antimony	0.096	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6020	Sediment	Arsenic	1.4	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Barium	59.7	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6020	Sediment	Cadmium	0.168	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Calcium	2350	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6020	Sediment	Chromium	10.9	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Cobalt	4.24	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Copper	9.2	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Iron	11800	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6020	Sediment	Lead	5.9	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Magnesium	3080	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Manganese	199	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Nickel	10.4	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Potassium	1320	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Silver	0.049	FALSE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Sodium	62	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Thallium	0.118	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6020	Sediment	Vanadium	14.1	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD1	2011-04-23	EPA6010B	Sediment	Zinc	43.1	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.1834	0.402	0.6266	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Aluminum	6490	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Antimony	0.069	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6020	Sediment	Arsenic	1.34	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Barium	72.5	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6020	Sediment	Cadmium	0.178	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Calcium	2660	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6020	Sediment	Chromium	14.1	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Cobalt	4.59	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Copper	10.8	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Iron	13300	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6020	Sediment	Lead	5.48	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Magnesium	3540	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Manganese	232	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Nickel	11.7	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Potassium	1640	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Silver	0.066	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Sodium	72	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Thallium	0.112	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6020	Sediment	Vanadium	17.3	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD2	2011-04-23	EPA6010B	Sediment	Zinc	41.2	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.5361	0.6857	0.6634	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Aluminum	8050	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Antimony	0.063	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6020	Sediment	Arsenic	1.46	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Barium	88.2	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6020	Sediment	Cadmium	0.152	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Calcium	3070	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6020	Sediment	Chromium	14.7	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Cobalt	5.6	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Copper	13.5	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Iron	16200	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6020	Sediment	Lead	5.46	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Magnesium	4290	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Manganese	273	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Nickel	15.1	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Potassium	2000	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Silver	0.075	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Sodium	84	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Thallium	0.11	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6020	Sediment	Vanadium	18.2	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBD	CR-WBD3	2011-04-23	EPA6010B	Sediment	Zinc	46.5	TRUE	mg/kg	49.64972157	47.30683364	-2457.969971	420623	5386852	OU 2 Transitional CSM Unit	3.6248	0.7839	0.5823	3
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Aluminum	13200	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Antimony	0.88	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6020	Sediment	Arsenic	5.23	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Barium	158	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Beryllium	0.5	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6020	Sediment	Cadmium	3.23	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Calcium	6520	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6020	Sediment	Chromium	26.5	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Cobalt	8.42	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Copper	47	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Iron	24100	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6020	Sediment	Lead	146	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Magnesium	8210	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Manganese	556	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA7471A	Sediment	Mercury	0.509	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Nickel	22.9	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Potassium	2180	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Silver	0.66	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Sodium	207	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Thallium	0.646	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6020	Sediment	Vanadium	30.5	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE1	2011-04-23	EPA6010B	Sediment	Zinc	391	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.9574	-2.1383	1.2235	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Aluminum	10400	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Antimony	1.2	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6020	Sediment	Arsenic	8.2	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Barium	200	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6020	Sediment	Cadmium	4.12	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Calcium	16600	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6020	Sediment	Chromium	17.8	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Cobalt	6.36	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Copper	30.4	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Iron	22500	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6020	Sediment	Lead	194	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Magnesium	8920	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Manganese	310	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA7471A	Sediment	Mercury	0.503	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Nickel	18.7	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Potassium	1550	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Silver	0.334	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Sodium	130	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Thallium	0.423	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6020	Sediment	Vanadium	23.8	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE2	2011-04-23	EPA6010B	Sediment	Zinc	449	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-2.0166	-2.7481	-0.6883	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Aluminum	8280	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Antimony	0.634	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6020	Sediment	Arsenic	3.88	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Barium	106	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6020	Sediment	Cadmium	1.9	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Calcium	68000	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6020	Sediment	Chromium	14.5	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Cobalt	5.41	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Copper	20	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Iron	14700	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6020	Sediment	Lead	64.3	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Magnesium	5800	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Manganese	291	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA7471A	Sediment	Mercury	0.145	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Nickel	14.2	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Potassium	1630	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Silver	0.132	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Sodium	109	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Thallium	0.168	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6020	Sediment	Vanadium	18	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WBE	CR-WBE3	2011-04-23	EPA6010B	Sediment	Zinc	147	TRUE	mg/kg	49.64972157	47.30683364	-2322.959961	420463	5386862	OU 2 Transitional CSM Unit	-0.818	-1.9857	-1.7562	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Aluminum	8000	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Antimony	0.261	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6020	Sediment	Arsenic	6.59	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Barium	93	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6020	Sediment	Cadmium	0.198	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Calcium	2420	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6020	Sediment	Chromium	15.8	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Cobalt	10.1	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Copper	13	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Iron	16300	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6020	Sediment	Lead	11.1	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Magnesium	4610	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Manganese	435	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Nickel	15.9	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Potassium	1740	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Silver	0.058	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Sodium	63	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Thallium	0.298	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6020	Sediment	Vanadium	19.9	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA1	2011-04-28	EPA6010B	Sediment	Zinc	55.8	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	3.6094	0.7108	0.3005	3
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Aluminum	8430	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Antimony	0.192	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6020	Sediment	Arsenic	3.81	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Barium	86.4	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6020	Sediment	Cadmium	1.43	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Calcium	2170	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6020	Sediment	Chromium	13.7	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Cobalt	6.42	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Copper	13	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Iron	15200	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6020	Sediment	Lead	24	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Magnesium	4010	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Manganese	161	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA7471A	Sediment	Mercury	0.032	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Nickel	13.1	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Potassium	1760	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Silver	0.072	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Sodium	81	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Thallium	0.479	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6020	Sediment	Vanadium	17.1	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA2	2011-04-28	EPA6010B	Sediment	Zinc	161	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	1.0654	-1.6095	1.1393	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Aluminum	10100	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Antimony	0.26	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6020	Sediment	Arsenic	3.5	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Barium	116	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6020	Sediment	Cadmium	3.21	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Calcium	2140	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6020	Sediment	Chromium	14	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Cobalt	6.04	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Copper	15.9	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Iron	15400	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6020	Sediment	Lead	44.1	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Magnesium	3760	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Manganese	171	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA7471A	Sediment	Mercury	0.057	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Nickel	12.8	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Potassium	2170	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Silver	0.099	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Sodium	104	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Thallium	0.444	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6020	Sediment	Vanadium	17.6	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCA	CR-WCA3	2011-04-28	EPA6010B	Sediment	Zinc	197	TRUE	mg/kg	55.25778394	43.24215303	1106.359985	403365	5322771	OU 2 Middle Laucustrine CSM Unit	0.144	-2.103	1.5755	2
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Aluminum	11700	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Antimony	0.277	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6020	Sediment	Arsenic	5.61	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Barium	131	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Beryllium	0.44	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6020	Sediment	Cadmium	0.401	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Calcium	2430	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6020	Sediment	Chromium	16.4	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Cobalt	6.98	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Copper	15.1	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Iron	19200	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6020	Sediment	Lead	11.1	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Magnesium	4450	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Manganese	286	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Nickel	14.4	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Potassium	2420	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Silver	0.054	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Sodium	86	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Thallium	0.191	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6020	Sediment	Vanadium	20.3	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB1	2011-04-28	EPA6010B	Sediment	Zinc	84.4	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	2.7293	-0.1825	0.5766	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Aluminum	12900	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Antimony	0.273	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6020	Sediment	Arsenic	6.17	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Barium	135	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Beryllium	0.46	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6020	Sediment	Cadmium	0.134	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Calcium	2080	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6020	Sediment	Chromium	15.7	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Cobalt	6.61	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Copper	16.2	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Iron	18700	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6020	Sediment	Lead	10.1	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Magnesium	4400	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Manganese	317	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Nickel	13.7	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Potassium	2490	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Silver	0.071	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Sodium	100	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Thallium	0.138	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6020	Sediment	Vanadium	20.4	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB2	2011-04-28	EPA6010B	Sediment	Zinc	55.4	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.489	0.5112	0.4098	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Aluminum	11150	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Antimony	0.31	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6020	Sediment	Arsenic	9.485	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Barium	119.5	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Beryllium	0.4	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6020	Sediment	Cadmium	0.118	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Calcium	2345	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6020	Sediment	Chromium	18	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Cobalt	8.05	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Copper	18.3	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Iron	20700	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6020	Sediment	Lead	10.55	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Magnesium	5260	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Manganese	390	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Nickel	17.3	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Potassium	2465	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Silver	0.072	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Sodium	80.5	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Thallium	0.1275	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6020	Sediment	Vanadium	22.4	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCB	CR-WCB3-1	2011-04-28	EPA6010B	Sediment	Zinc	54.75	TRUE	mg/kg	55.25778394	43.24215303	1044.439941	403525	5322701	OU 2 Middle Laucustrine CSM Unit	3.6251	0.3942	0.1235	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Aluminum	7470	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Antimony	0.226	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6020	Sediment	Arsenic	7.28	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Barium	78.9	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6020	Sediment	Cadmium	0.154	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Calcium	6140	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6020	Sediment	Chromium	16.2	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Cobalt	7.63	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Copper	13.2	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Iron	17200	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6020	Sediment	Lead	10	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Magnesium	4630	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Manganese	300	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Nickel	16	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Potassium	1450	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Silver	0.061	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Sodium	71	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Thallium	0.154	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6020	Sediment	Vanadium	18.8	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC1	2011-04-28	EPA6010B	Sediment	Zinc	49.9	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	3.204	0.3112	-0.7461	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Aluminum	8510	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Antimony	0.247	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6020	Sediment	Arsenic	7.08	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Barium	86.7	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6020	Sediment	Cadmium	0.225	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Calcium	8690	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6020	Sediment	Chromium	19.7	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Cobalt	7.63	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Copper	17.2	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Iron	19000	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6020	Sediment	Lead	10.7	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Magnesium	5330	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Manganese	282	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Nickel	18.8	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Potassium	1420	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Silver	0.103	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Sodium	88	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Thallium	0.162	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6020	Sediment	Vanadium	21.2	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC2	2011-04-28	EPA6010B	Sediment	Zinc	56.3	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.9446	0.0689	-0.8016	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Aluminum	9210	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Antimony	0.268	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6020	Sediment	Arsenic	6.76	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Barium	98.6	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6020	Sediment	Cadmium	0.475	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Calcium	4550	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6020	Sediment	Chromium	19	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Cobalt	7.58	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Copper	19	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Iron	19100	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6020	Sediment	Lead	12.7	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Magnesium	4910	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Manganese	249	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA7471A	Sediment	Mercury	0.017	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Nickel	17.8	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Potassium	1720	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Silver	0.113	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Sodium	83	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Thallium	0.488	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6020	Sediment	Vanadium	21.5	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCC	CR-WCC3	2011-04-28	EPA6010B	Sediment	Zinc	73.6	TRUE	mg/kg	55.25778394	43.24215303	1064.280029	403575	5322731	OU 2 Middle Laucustrine CSM Unit	2.4137	-0.5383	0.0155	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Aluminum	8390	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Antimony	0.269	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6020	Sediment	Arsenic	5.59	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Barium	68.6	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6020	Sediment	Cadmium	0.113	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Calcium	5080	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6020	Sediment	Chromium	18.4	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Cobalt	6.94	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Copper	15.4	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Iron	17800	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6020	Sediment	Lead	7.71	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Magnesium	4150	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Manganese	248	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Nickel	18.4	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Potassium	1190	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Silver	0.059	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Sodium	72	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Thallium	0.064	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6020	Sediment	Vanadium	18.7	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD1	2011-04-28	EPA6010B	Sediment	Zinc	41	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.5837	0.4242	-0.3624	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Aluminum	10800	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Antimony	0.277	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6020	Sediment	Arsenic	6.18	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Barium	97.8	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6020	Sediment	Cadmium	0.104	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Calcium	2780	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6020	Sediment	Chromium	19.8	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Cobalt	8.3	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Copper	18.7	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Iron	20900	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6020	Sediment	Lead	8.92	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Magnesium	4370	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Manganese	343	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Nickel	21.5	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Potassium	1620	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Silver	0.057	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Sodium	87	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Thallium	0.081	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6020	Sediment	Vanadium	20.3	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD2	2011-04-28	EPA6010B	Sediment	Zinc	46.7	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.7922	0.7511	0.289	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Aluminum	9990	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Antimony	0.298	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6020	Sediment	Arsenic	6.56	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Barium	90.3	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6020	Sediment	Cadmium	0.106	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Calcium	2800	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6020	Sediment	Chromium	20.6	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Cobalt	7.97	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Copper	19.1	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Iron	20300	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6020	Sediment	Lead	9.48	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Magnesium	4320	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Manganese	319	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Nickel	21.3	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Potassium	1360	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Silver	0.098	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Sodium	89	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Thallium	0.081	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6020	Sediment	Vanadium	21.3	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCD	CR-WCD3	2011-04-28	EPA6010B	Sediment	Zinc	45.5	TRUE	mg/kg	55.25778394	43.24215303	1039.319946	403605	5322711	OU 2 Middle Laucustrine CSM Unit	3.6216	0.5654	0.2679	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Aluminum	7720	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Antimony	0.24	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6020	Sediment	Arsenic	6.04	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Barium	77.2	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6020	Sediment	Cadmium	0.142	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Calcium	8520	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6020	Sediment	Chromium	16.5	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Cobalt	7.49	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6020	Sediment	Lead	7.98	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Magnesium	4620	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Manganese	294	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Nickel	17.5	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Potassium	1140	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Silver	0.063	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Sodium	80	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Thallium	0.109	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6020	Sediment	Vanadium	18	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE1	2011-04-28	EPA6010B	Sediment	Zinc	44.7	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.271	0.4964	-0.9405	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Aluminum	9290	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Antimony	0.258	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6020	Sediment	Arsenic	5.38	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Barium	99.9	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6020	Sediment	Cadmium	0.169	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Calcium	5590	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6020	Sediment	Chromium	18.4	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Cobalt	7.45	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Copper	16	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Iron	18900	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6020	Sediment	Lead	9.21	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Magnesium	4390	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Manganese	304	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Nickel	18.1	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Potassium	1720	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Silver	0.065	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Sodium	76	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Thallium	0.115	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6020	Sediment	Vanadium	19.8	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE2	2011-04-28	EPA6010B	Sediment	Zinc	51	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.2027	0.3356	-0.3092	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Aluminum	12600	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Antimony	0.263	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6020	Sediment	Arsenic	4.96	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Barium	134	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Beryllium	0.46	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6020	Sediment	Cadmium	0.137	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Calcium	2930	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6020	Sediment	Chromium	20.6	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Cobalt	8.32	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Copper	18.4	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Iron	21000	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6020	Sediment	Lead	9.95	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Magnesium	4530	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Manganese	471	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Nickel	19.7	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Potassium	2440	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Silver	0.07	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Sodium	93	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Thallium	0.122	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6020	Sediment	Vanadium	22.4	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WCE	CR-WCE3	2011-04-28	EPA6010B	Sediment	Zinc	51.7	TRUE	mg/kg	55.25778394	43.24215303	993.5999756	403585	5322661	OU 2 Middle Laucustrine CSM Unit	3.6752	0.7869	0.5498	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Aluminum	8790	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Antimony	0.227	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6020	Sediment	Arsenic	3.64	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Barium	49.2	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6020	Sediment	Cadmium	0.132	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Calcium	2240	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6020	Sediment	Chromium	7.96	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Cobalt	4.22	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Copper	6.2	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Iron	15900	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6020	Sediment	Lead	6.08	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Magnesium	6240	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Manganese	238	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Nickel	8.91	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Potassium	1440	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Silver	0.043	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Sodium	168	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6020	Sediment	Vanadium	10.5	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA1	2011-05-03	EPA6010B	Sediment	Zinc	51	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.7231	0.4609	-0.0266	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Aluminum	7190	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Antimony	0.155	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6020	Sediment	Arsenic	2.84	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Barium	57.3	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6020	Sediment	Cadmium	0.074	FALSE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Calcium	2120	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6020	Sediment	Chromium	10.6	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Cobalt	4.45	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Copper	7.6	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Iron	13200	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6020	Sediment	Lead	4.8	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Magnesium	3690	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Manganese	234	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Nickel	9.18	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Potassium	1400	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Silver	0.037	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Sodium	105	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Thallium	0.086	FALSE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6020	Sediment	Vanadium	12.7	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA2	2011-05-03	EPA6010B	Sediment	Zinc	30.2	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	3.9931	0.7562	0.2891	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Aluminum	6910	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Antimony	0.143	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6020	Sediment	Arsenic	2.93	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Barium	58.6	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6020	Sediment	Cadmium	0.058	FALSE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Calcium	2480	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6020	Sediment	Chromium	8.91	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Cobalt	4.67	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Copper	8.1	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Iron	12800	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6020	Sediment	Lead	4.56	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Magnesium	3680	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Manganese	224	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Nickel	10.1	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Potassium	1250	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Sodium	176	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Thallium	0.076	FALSE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6020	Sediment	Vanadium	11.6	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSA	CR-WSA3	2011-05-03	EPA6010B	Sediment	Zinc	28.2	TRUE	mg/kg	84.95771244	7.256007518	671.4299927	385252	5304919	OU 2 Lower Laucustrine CSM Unit	4.0258	1.1606	-0.0154	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Aluminum	9420	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Antimony	0.152	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6020	Sediment	Arsenic	3.5	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Barium	62.7	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6020	Sediment	Cadmium	0.098	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Calcium	3500	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6020	Sediment	Chromium	7.11	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Cobalt	4.06	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Copper	6.1	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Iron	15400	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6020	Sediment	Lead	4.92	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Magnesium	5760	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Manganese	229	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Nickel	8.32	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Potassium	1590	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Silver	0.028	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Sodium	147	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Thallium	0.092	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6020	Sediment	Vanadium	9.5	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB1	2011-05-03	EPA6010B	Sediment	Zinc	38.9	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.8429	0.8108	-0.7199	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Aluminum	8310	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Antimony	0.687	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6020	Sediment	Arsenic	2.58	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Barium	65.9	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6020	Sediment	Cadmium	0.078	FALSE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Calcium	2160	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6020	Sediment	Chromium	7.98	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Cobalt	4.14	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Copper	6.9	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Iron	13800	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6020	Sediment	Lead	4.64	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Magnesium	4320	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Manganese	212	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Nickel	7.62	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Potassium	1470	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Silver	0.026	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Sodium	160	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Thallium	0.078	FALSE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6020	Sediment	Vanadium	12.1	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB2	2011-05-03	EPA6010B	Sediment	Zinc	30.8	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	3.9145	0.8906	0.0569	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Aluminum	7850	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Antimony	0.144	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6020	Sediment	Arsenic	2.59	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Barium	58.3	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6020	Sediment	Cadmium	0.067	FALSE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Calcium	2160	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6020	Sediment	Chromium	8.61	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Cobalt	4.57	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Copper	7.3	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Iron	14000	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6020	Sediment	Lead	4.75	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Magnesium	4800	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Manganese	255	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Nickel	8.95	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Potassium	1490	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Silver	0.032	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Sodium	162	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Thallium	0.081	FALSE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6020	Sediment	Vanadium	12	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSB	CR-WSB3	2011-05-03	EPA6010B	Sediment	Zinc	30.8	TRUE	mg/kg	84.95771244	7.256007518	712.2000122	385292	5304929	OU 2 Lower Laucustrine CSM Unit	4.1198	1.0097	0.1303	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Aluminum	8430	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Antimony	0.209	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6020	Sediment	Arsenic	3.92	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Barium	73.7	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6020	Sediment	Cadmium	0.373	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Calcium	1870	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6020	Sediment	Chromium	7.57	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Cobalt	4.54	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Copper	5.4	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Iron	16100	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6020	Sediment	Lead	10.2	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Magnesium	5100	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Manganese	226	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Nickel	7.71	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Potassium	1500	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Silver	0.021	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Sodium	143	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Thallium	0.181	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6020	Sediment	Vanadium	11.2	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC1	2011-05-03	EPA6010B	Sediment	Zinc	85.2	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.403	-0.3006	0.338	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Aluminum	8730	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Antimony	0.193	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6020	Sediment	Arsenic	3.31	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Barium	60.8	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6020	Sediment	Cadmium	0.466	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Calcium	1750	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6020	Sediment	Chromium	8.31	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Cobalt	4.13	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Copper	6.3	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Iron	15300	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6020	Sediment	Lead	15	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Magnesium	4790	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Manganese	191	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA7471A	Sediment	Mercury	0.012	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Nickel	7.37	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Potassium	1700	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Silver	0.031	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Sodium	93	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Thallium	0.171	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6020	Sediment	Vanadium	11.5	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC2	2011-05-03	EPA6010B	Sediment	Zinc	71	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	2.2262	-0.8672	0.6803	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Aluminum	9710	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Antimony	0.132	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6020	Sediment	Arsenic	2.73	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Barium	66	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6020	Sediment	Cadmium	0.07	FALSE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Calcium	2280	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6020	Sediment	Chromium	7.98	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Cobalt	4.17	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Copper	7.3	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Iron	14300	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6020	Sediment	Lead	5.2	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Magnesium	5110	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Manganese	211	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Nickel	8.18	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Potassium	1770	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Silver	0.043	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Sodium	193	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Thallium	0.097	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6020	Sediment	Vanadium	12.1	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSC	CR-WSC3	2011-05-03	EPA6010B	Sediment	Zinc	30.7	TRUE	mg/kg	84.95771244	7.256007518	650.7999878	385222	5305019	OU 2 Lower Laucustrine CSM Unit	3.9716	0.7356	-0.0313	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Aluminum	8290	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Antimony	0.163	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6020	Sediment	Arsenic	4.59	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Barium	48.1	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6020	Sediment	Cadmium	0.208	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Calcium	1890	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6020	Sediment	Chromium	6.93	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Cobalt	4.02	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Copper	7.1	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Iron	15200	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6020	Sediment	Lead	7.15	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Magnesium	5860	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Manganese	211	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Nickel	8.25	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Potassium	1330	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Silver	0.028	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Sodium	109	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Thallium	0.171	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6020	Sediment	Vanadium	9.51	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD1	2011-05-03	EPA6010B	Sediment	Zinc	58.6	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.3385	0.1773	-0.0787	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Aluminum	8060	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Antimony	0.185	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6020	Sediment	Arsenic	4.41	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Barium	49.2	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6020	Sediment	Cadmium	0.312	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Calcium	1870	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6020	Sediment	Chromium	7.62	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Cobalt	4.06	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Copper	5.3	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Iron	15400	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6020	Sediment	Lead	7.71	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Magnesium	5230	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Manganese	209	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Nickel	7.83	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Potassium	1380	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Sodium	109	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Thallium	0.219	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6020	Sediment	Vanadium	10.7	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD2	2011-05-03	EPA6010B	Sediment	Zinc	68.1	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	3.0589	-0.2068	0.1582	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Aluminum	8500	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Antimony	0.173	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6020	Sediment	Arsenic	3.82	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Barium	54.5	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6020	Sediment	Cadmium	0.451	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Calcium	1540	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6020	Sediment	Chromium	8.99	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Cobalt	4.09	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Copper	6.7	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Iron	16000	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6020	Sediment	Lead	12.6	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Magnesium	5330	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Manganese	218	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Nickel	8.03	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Potassium	1630	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Silver	0.03	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Sodium	88	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Thallium	0.211	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6020	Sediment	Vanadium	10.9	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSD	CR-WSD3	2011-05-03	EPA6010B	Sediment	Zinc	92.2	TRUE	mg/kg	84.95771244	7.256007518	661.2999878	385232	5305039	OU 2 Lower Laucustrine CSM Unit	2.4296	-0.6566	0.6804	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Aluminum	6910	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Antimony	0.171	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6020	Sediment	Arsenic	4.01	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Barium	47.5	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6020	Sediment	Cadmium	0.143	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Calcium	1840	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6020	Sediment	Chromium	8.32	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Cobalt	4.01	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Copper	6	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Iron	13700	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6020	Sediment	Lead	5.82	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Magnesium	4740	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Manganese	219	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Nickel	8.36	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Potassium	1400	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Silver	0.027	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Sodium	117	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Thallium	0.119	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6020	Sediment	Vanadium	10.6	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE1	2011-05-03	EPA6010B	Sediment	Zinc	50.8	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	3.584	0.3623	0.052	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Aluminum	6120	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Antimony	0.133	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6020	Sediment	Arsenic	3.52	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Barium	44.4	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Beryllium	0.24	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6020	Sediment	Cadmium	0.05	FALSE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Calcium	2190	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6020	Sediment	Chromium	8.29	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Cobalt	3.85	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Copper	6.4	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Iron	11400	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6020	Sediment	Lead	4.46	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Magnesium	3820	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Manganese	193	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Nickel	8.02	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Potassium	1180	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Silver	0.03	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Sodium	183	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Thallium	0.065	FALSE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6020	Sediment	Vanadium	11	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE2	2011-05-03	EPA6010B	Sediment	Zinc	26.3	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.0538	0.8821	-0.211	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Aluminum	8370	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Antimony	0.195	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6020	Sediment	Arsenic	4.1	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Barium	45	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6020	Sediment	Cadmium	0.051	FALSE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Calcium	1990	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6020	Sediment	Chromium	8.02	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Cobalt	4.3	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Copper	7.1	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Iron	15000	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6020	Sediment	Lead	4.95	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Magnesium	6330	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Manganese	267	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Nickel	8.89	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Potassium	1260	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Silver	0.101	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Sodium	163	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Thallium	0.083	FALSE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6020	Sediment	Vanadium	10.4	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	CR-WSE	CR-WSE3	2011-05-03	EPA6010B	Sediment	Zinc	30.8	TRUE	mg/kg	84.95771244	7.256007518	627.4199829	385202	5305059	OU 2 Lower Laucustrine CSM Unit	4.267	0.8218	-0.1896	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Aluminum	6380	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Antimony	0.072	FALSE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6020	Sediment	Arsenic	2.36	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Barium	61.2	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6020	Sediment	Cadmium	0.222	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Calcium	3720	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6020	Sediment	Chromium	12.3	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Cobalt	4.45	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Copper	12	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Iron	12900	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6020	Sediment	Lead	7.6	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Magnesium	4130	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Manganese	229	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Nickel	11.4	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Potassium	1000	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Silver	0.073	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Sodium	118	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Thallium	0.146	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6020	Sediment	Vanadium	19.3	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAA	SD-AAA	2011-04-25	EPA6010B	Sediment	Zinc	44.9	TRUE	mg/kg	67.42955956	17.67877123	460.6099854	414772	5345721	OU 2 Upper Laucustrine CSM Unit	2.6815	-0.011	0.1274	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Aluminum	6030	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Antimony	0.083	FALSE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6020	Sediment	Arsenic	2.02	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Barium	59.4	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6020	Sediment	Cadmium	0.199	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Calcium	3330	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6020	Sediment	Chromium	9.7	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Cobalt	4.3	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Copper	12	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Iron	13300	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6020	Sediment	Lead	7.17	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Magnesium	3920	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Manganese	220	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Nickel	12	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Potassium	863	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Silver	0.073	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Sodium	113	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Thallium	0.097	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6020	Sediment	Vanadium	15.8	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAB	SD-AAB	2011-04-25	EPA6010B	Sediment	Zinc	45.8	TRUE	mg/kg	60.74096507	10.60973148	462.4599915	414766	5345695	OU 2 Upper Laucustrine CSM Unit	2.5605	0.2181	0.052	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Aluminum	6320	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Antimony	0.069	FALSE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6020	Sediment	Arsenic	1.8	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Barium	64.7	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6020	Sediment	Cadmium	0.204	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Calcium	3110	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6020	Sediment	Chromium	11	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Cobalt	4.44	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Copper	11.2	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Iron	13700	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6020	Sediment	Lead	7.88	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Magnesium	3890	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Manganese	242	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA7471A	Sediment	Mercury	0.011	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Nickel	11.4	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Potassium	969	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Silver	0.068	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Sodium	104	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Thallium	0.126	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6020	Sediment	Vanadium	16.7	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAC	SD-AAC	2011-04-25	EPA6010B	Sediment	Zinc	50.6	TRUE	mg/kg	61.99587872	15.58237661	461.0100098	414772	5345727	OU 2 Upper Laucustrine CSM Unit	2.5244	0.112	0.4007	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Aluminum	6435	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6020	Sediment	Arsenic	1.965	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Barium	59.05	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Beryllium	0.205	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6020	Sediment	Cadmium	0.239	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Calcium	3195	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6020	Sediment	Chromium	11	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Cobalt	4.17	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Copper	11.7	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Iron	13250	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6020	Sediment	Lead	8.395	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Magnesium	3755	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Manganese	210.5	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA7471A	Sediment	Mercury	0.013	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Nickel	11.3	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Potassium	922.5	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Silver	0.0735	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Sodium	118.5	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Thallium	0.1295	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6020	Sediment	Vanadium	18	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAD	SD-AAD-1	2011-04-25	EPA6010B	Sediment	Zinc	49.3	TRUE	mg/kg	64.11087292	14.06351264	467.2099915	414766	5345730	OU 2 Upper Laucustrine CSM Unit	2.4015	-0.1298	0.372	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Aluminum	5600	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Antimony	0.085	FALSE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6020	Sediment	Arsenic	2.03	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Barium	66.2	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6020	Sediment	Cadmium	0.198	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Calcium	3090	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6020	Sediment	Chromium	10.9	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Cobalt	4.32	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Copper	10.3	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6020	Sediment	Lead	6.74	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Magnesium	3650	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Manganese	215	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Nickel	11.4	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Potassium	861	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Silver	0.063	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Sodium	99	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Thallium	0.112	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6020	Sediment	Vanadium	17.6	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-AAE	SD-AAE	2011-04-25	EPA6010B	Sediment	Zinc	42.8	TRUE	mg/kg	57.08910891	10.89108911	446.9100037	414785	5345710	OU 2 Upper Laucustrine CSM Unit	2.6869	0.2835	0.1355	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Aluminum	4970	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Antimony	0.277	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6020	Sediment	Arsenic	2.49	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Barium	62	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6020	Sediment	Cadmium	0.388	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Calcium	2780	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6020	Sediment	Chromium	10.8	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Cobalt	4.19	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Copper	10	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Iron	10800	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6020	Sediment	Lead	16.7	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Magnesium	2910	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Manganese	161	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA7471A	Sediment	Mercury	0.026	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Nickel	10.6	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Potassium	962	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Silver	0.07	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Sodium	63	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Thallium	0.166	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6020	Sediment	Vanadium	16.3	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBA	SD-BBA	2011-04-29	EPA6010B	Sediment	Zinc	76.6	TRUE	mg/kg	70.8531746	11.25	-539.6799927	415263	5374194	OU 2 Upper Laucustrine CSM Unit	1.3812	-1.0241	0.4882	3
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Aluminum	7410	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Antimony	0.399	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6020	Sediment	Arsenic	7.79	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Barium	126	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6020	Sediment	Cadmium	1.02	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Calcium	3340	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6020	Sediment	Chromium	16	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Cobalt	6.05	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Copper	16.8	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Iron	15200	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6020	Sediment	Lead	56.1	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Magnesium	4020	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Manganese	230	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA7471A	Sediment	Mercury	0.063	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Nickel	17.1	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Potassium	1540	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Silver	0.092	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Sodium	70	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Thallium	0.214	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6020	Sediment	Vanadium	24.9	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBB	SD-BBB	2011-04-29	EPA6010B	Sediment	Zinc	127	TRUE	mg/kg	63.81532927	19.03667433	-510.6700134	415243	5374219	OU 2 Upper Laucustrine CSM Unit	0.518	-1.7645	0.3057	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Aluminum	6560	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Antimony	0.366	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6020	Sediment	Arsenic	5.55	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Barium	95.5	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6020	Sediment	Cadmium	0.979	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Calcium	4095	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6020	Sediment	Chromium	12.8	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Cobalt	6.13	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Copper	15.95	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Iron	15600	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6020	Sediment	Lead	49.85	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Magnesium	4160	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Manganese	241	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA7471A	Sediment	Mercury	0.089	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Nickel	16.3	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Potassium	1270	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Silver	0.105	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Sodium	77	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Thallium	0.18	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6020	Sediment	Vanadium	20.4	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBC	SD-BBC-1	2011-04-29	EPA6010B	Sediment	Zinc	143	TRUE	mg/kg	62.00749064	13.38826467	-555.4500122	415222	5374169	OU 2 Upper Laucustrine CSM Unit	0.2813	-1.6931	0.2936	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Aluminum	5460	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Antimony	0.317	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6020	Sediment	Arsenic	4.2	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Barium	67.7	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6020	Sediment	Cadmium	0.6	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Calcium	2520	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6020	Sediment	Chromium	12.9	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Cobalt	4.47	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Copper	11.3	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Iron	12400	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6020	Sediment	Lead	31.4	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Magnesium	3220	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Manganese	190	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA7471A	Sediment	Mercury	0.058	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Nickel	11.8	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Potassium	933	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Silver	0.065	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Sodium	62	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Thallium	0.185	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6020	Sediment	Vanadium	17.2	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBD	SD-BBD	2011-04-29	EPA6010B	Sediment	Zinc	90.1	TRUE	mg/kg	71.02607653	11.83934459	-545.1799927	415230	5374181	OU 2 Upper Laucustrine CSM Unit	0.8366	-1.5003	0.5783	2
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Aluminum	6830	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Antimony	0.283	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6020	Sediment	Arsenic	4.87	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Barium	90.8	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6020	Sediment	Cadmium	0.485	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Calcium	2970	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6020	Sediment	Chromium	14.2	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Cobalt	5.54	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Copper	15.6	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Iron	14900	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6020	Sediment	Lead	27.2	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Magnesium	3680	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Manganese	222	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA7471A	Sediment	Mercury	0.03	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Nickel	14.7	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Potassium	1310	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Silver	0.076	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Sodium	74	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Thallium	0.151	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6020	Sediment	Vanadium	19.6	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BBE	SD-BBE	2011-04-29	EPA6010B	Sediment	Zinc	105	TRUE	mg/kg	65.85838003	16.66836475	-552.9400024	415179	5374165	OU 2 Upper Laucustrine CSM Unit	1.2859	-0.9488	0.4145	3
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Aluminum	9660	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Antimony	0.213	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6020	Sediment	Arsenic	2.33	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Barium	92.9	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6020	Sediment	Cadmium	1.4	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Calcium	1990	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6020	Sediment	Chromium	8.63	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Cobalt	3.6	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Copper	12.5	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Iron	11800	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6020	Sediment	Lead	56.4	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Magnesium	2920	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Manganese	163	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA7471A	Sediment	Mercury	0.07	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Nickel	7.45	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Potassium	944	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Silver	0.089	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Sodium	130	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Thallium	0.339	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6020	Sediment	Vanadium	13.1	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCA	SD-BCA	2010-04-28	EPA6010B	Sediment	Zinc	174	TRUE	mg/kg	74.16245259	15.01264223	656.8499756	409888	5366774	OU 2 Upper Laucustrine CSM Unit	-0.4792	-1.8285	1.4877	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Aluminum	9970	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Antimony	0.203	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6020	Sediment	Arsenic	2.17	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Barium	93.6	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6020	Sediment	Cadmium	1.25	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Calcium	2270	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6020	Sediment	Chromium	9.03	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Cobalt	3.9	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Copper	14	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Iron	12700	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6020	Sediment	Lead	56.1	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Magnesium	3210	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Manganese	177	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA7471A	Sediment	Mercury	0.07	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Nickel	9.08	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Potassium	1030	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Selenium	0.06	FALSE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Silver	0.109	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Sodium	148	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Thallium	0.337	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6020	Sediment	Vanadium	14.6	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCB	SD-BCB	2010-04-28	EPA6010B	Sediment	Zinc	157	TRUE	mg/kg	75.00505561	16.73407482	628.2000122	409919	5366771	OU 2 Upper Laucustrine CSM Unit	-0.2699	-1.7338	1.4585	2
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Aluminum	10650	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Antimony	0.137	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6020	Sediment	Arsenic	1.995	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Barium	97.4	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Beryllium	0.385	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6020	Sediment	Cadmium	0.5915	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Calcium	1870	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6020	Sediment	Chromium	9.24	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Cobalt	3.5	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Copper	10.35	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Iron	11550	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6020	Sediment	Lead	23.95	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Magnesium	2790	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Manganese	188.5	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA7471A	Sediment	Mercury	0.0225	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Nickel	7.105	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Potassium	920	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Silver	0.036	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Sodium	133.5	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Thallium	0.1915	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6020	Sediment	Vanadium	13.35	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCC	SD-BCC-1	2010-04-28	EPA6010B	Sediment	Zinc	91.35	TRUE	mg/kg	76.00360848	13.29624618	673.3300171	409904	5366681	OU 2 Upper Laucustrine CSM Unit	0.8808	-0.828	1.267	3
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Aluminum	10300	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Antimony	0.16	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6020	Sediment	Arsenic	1.71	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Barium	99.8	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6020	Sediment	Cadmium	0.775	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Calcium	2020	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6020	Sediment	Chromium	7.69	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Cobalt	3.6	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Copper	11.9	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Iron	12300	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6020	Sediment	Lead	36.8	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Magnesium	3060	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Manganese	201	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA7471A	Sediment	Mercury	0.054	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Nickel	7.39	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Potassium	1010	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Silver	0.058	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Sodium	147	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Thallium	0.226	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6020	Sediment	Vanadium	14.5	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCD	SD-BCD	2010-04-28	EPA6010B	Sediment	Zinc	114	TRUE	mg/kg	77.08269759	14.07791679	697.7000122	409915	5366592	OU 2 Upper Laucustrine CSM Unit	0.1885	-1.2781	1.4239	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Aluminum	9640	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Antimony	0.179	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6020	Sediment	Arsenic	2.37	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Barium	89.9	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6020	Sediment	Cadmium	0.949	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Calcium	2300	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6020	Sediment	Chromium	9.81	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Cobalt	3.7	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Copper	12.2	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Iron	11800	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6020	Sediment	Lead	46.4	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Magnesium	2780	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Manganese	170	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA7471A	Sediment	Mercury	0.051	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Nickel	7.31	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Potassium	1040	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Selenium	0.03	FALSE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Silver	0.085	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Sodium	147	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Thallium	0.374	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6020	Sediment	Vanadium	15.9	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BCE	SD-BCE	2010-04-28	EPA6010B	Sediment	Zinc	136	TRUE	mg/kg	70.38839774	17.51266514	632.8800049	409904	5366801	OU 2 Upper Laucustrine CSM Unit	0.0928	-1.4754	1.369	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Aluminum	8000	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Antimony	2.7	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6020	Sediment	Arsenic	5.15	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Barium	314	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6020	Sediment	Cadmium	2.96	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Calcium	10200	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6020	Sediment	Chromium	14.6	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Cobalt	5.79	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Copper	62.8	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Iron	20200	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Lead	1200	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Magnesium	7330	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Manganese	274	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA7471A	Sediment	Mercury	0.291	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Nickel	12.7	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Potassium	1190	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Silver	1.94	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Sodium	138	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Thallium	0.3	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6020	Sediment	Vanadium	19.9	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFA	SD-BFA	2011-04-25	EPA6010B	Sediment	Zinc	757	TRUE	mg/kg	71.94579288	20.85355987	-261.519989	422883	5400975	OU 1 South	-3.7862	-2.1767	-0.0741	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Aluminum	8660	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Antimony	1.42	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6020	Sediment	Arsenic	5.56	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Barium	230	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6020	Sediment	Cadmium	2.02	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Calcium	6060	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6020	Sediment	Chromium	13.9	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Cobalt	5.54	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Copper	38.2	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Iron	18800	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Lead	1210	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Magnesium	5330	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Manganese	267	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA7471A	Sediment	Mercury	0.174	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Nickel	12.8	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Potassium	1280	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Silver	1.63	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Sodium	133	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Thallium	0.235	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6020	Sediment	Vanadium	21	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFB	SD-BFB	2011-04-25	EPA6010B	Sediment	Zinc	443	TRUE	mg/kg	68.9074773	23.60501887	-277.7000122	422862	5400946	OU 1 South	-2.8472	-2.08	0.4252	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Aluminum	8370	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Antimony	2.34	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6020	Sediment	Arsenic	5.38	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Barium	286	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6020	Sediment	Cadmium	3.13	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Calcium	9490	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6020	Sediment	Chromium	14.9	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Cobalt	5.91	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Copper	50.5	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Iron	20700	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Lead	1470	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Magnesium	6950	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Manganese	313	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA7471A	Sediment	Mercury	0.332	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Nickel	13.6	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Potassium	1250	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Silver	2.71	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Sodium	137	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Thallium	0.293	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6020	Sediment	Vanadium	21.2	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFC	SD-BFC	2011-04-25	EPA6010B	Sediment	Zinc	659	TRUE	mg/kg	63.13115604	23.69103162	-268.3500061	422879	5400965	OU 1 South	-3.6262	-2.3273	0.1631	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Aluminum	7510	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Antimony	2.71	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6020	Sediment	Arsenic	5.67	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Barium	288	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6020	Sediment	Cadmium	3.63	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Calcium	9980	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6020	Sediment	Chromium	15.4	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Cobalt	5.58	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Copper	54.1	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Iron	20100	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Lead	1620	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Magnesium	6970	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Manganese	402	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA7471A	Sediment	Mercury	0.34	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Nickel	14	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Potassium	1180	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Silver	2.33	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Sodium	114	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Thallium	0.281	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6020	Sediment	Vanadium	19.7	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFD	SD-BFD	2011-04-25	EPA6010B	Sediment	Zinc	744	TRUE	mg/kg	54.62906812	27.61269456	-274.3800049	422875	5400956	OU 1 South	-3.9136	-2.2806	0.0667	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Aluminum	7890	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Antimony	2.85	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6020	Sediment	Arsenic	5.61	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Barium	332	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6020	Sediment	Cadmium	3.48	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Calcium	7040	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6020	Sediment	Chromium	13.4	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Cobalt	5.82	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Copper	47.1	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Iron	20400	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Lead	2590	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Magnesium	5750	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Manganese	330	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA7471A	Sediment	Mercury	0.253	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Nickel	12.6	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Potassium	1110	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Selenium	0.6	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Silver	3.42	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Sodium	110	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Thallium	0.298	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6020	Sediment	Vanadium	18.7	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BFE	SD-BFE	2011-04-25	EPA6010B	Sediment	Zinc	776	TRUE	mg/kg	70.53140097	22.64615991	-273.9200134	422874	5400956	OU 1 South	-4.1256	-2.2132	0.3652	2
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Aluminum	19600	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Antimony	69.05	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6020	Sediment	Arsenic	16.7	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Barium	1625	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Calcium	63000	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Chromium	109	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Cobalt	41.9	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Copper	1940	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Iron	177000	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Lead	267	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Magnesium	9530	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Manganese	3325	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.0555	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Nickel	13.6	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Potassium	3225	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Selenium	3.25	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Silver	4.065	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Sodium	1525	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Thallium	0.069	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Vanadium	46.15	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSA	SD-BSA-1	2009-09-09	EPA6010B	Sediment	Zinc	13600	TRUE	mg/kg	83.01584119	1.945057149	-113.3300018	452505	5424394	OU 1 North	-2.9326	4.5147	-0.2455	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Aluminum	15700	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Antimony	36.7	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6020	Sediment	Arsenic	16.4	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Barium	1090	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6020	Sediment	Cadmium	2.38	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Calcium	43700	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Chromium	67.3	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Cobalt	26.2	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Copper	1220	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Iron	126000	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Lead	474	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Magnesium	8760	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Manganese	2350	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.158	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Nickel	12.5	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Potassium	2660	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Selenium	2.7	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Silver	2.16	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Sodium	1090	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Thallium	0.136	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Vanadium	44.8	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSB	SD-BSB	2009-09-09	EPA6010B	Sediment	Zinc	11000	TRUE	mg/kg	63.07645936	3.265347132	-126.2600021	452451	5424379	OU 1 North	-3.6892	3.0127	-0.195	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Aluminum	18400	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Antimony	48.2	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6020	Sediment	Arsenic	29.4	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Barium	1290	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Beryllium	0.43	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6020	Sediment	Cadmium	2.58	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Calcium	53600	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Chromium	80.7	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Cobalt	35	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Copper	1550	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Iron	158000	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Lead	564	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Magnesium	10200	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Manganese	2920	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.147	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Nickel	13.6	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Potassium	3050	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Selenium	3	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Silver	3.46	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Sodium	1390	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Thallium	0.119	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Vanadium	50.8	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSC	SD-BSC	2009-09-09	EPA6010B	Sediment	Zinc	13700	TRUE	mg/kg	66.47282936	4.341287347	-119.4599991	452467	5424385	OU 1 North	-3.5675	3.2613	-0.3368	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Aluminum	14100	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Antimony	46.9	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6020	Sediment	Arsenic	19	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Barium	1180	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6020	Sediment	Cadmium	2.76	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Calcium	44800	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Chromium	70.1	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Cobalt	26	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Copper	1220	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Iron	120000	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Lead	344	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Magnesium	9910	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Manganese	2130	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.366	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Nickel	13.6	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Potassium	2420	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Selenium	2.5	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Silver	2.64	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Sodium	1080	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Thallium	0.144	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Vanadium	45.5	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSD	SD-BSD	2009-09-09	EPA6010B	Sediment	Zinc	9780	TRUE	mg/kg	70.79187817	3.969543147	-138.8899994	452428	5424369	OU 1 North	-3.841	2.5737	-0.4377	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Aluminum	15900	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Antimony	40.7	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6020	Sediment	Arsenic	17.5	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Barium	1110	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6020	Sediment	Cadmium	2.89	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Calcium	47200	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Chromium	68.3	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Cobalt	26.1	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Copper	1220	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Iron	129000	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Lead	417	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Magnesium	10200	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Manganese	2330	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA7471A_2mm	Sediment	Mercury	0.107	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Nickel	12.6	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Potassium	2760	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Selenium	2.4	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Silver	2.59	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Sodium	1180	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Thallium	0.124	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Vanadium	44.8	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-BSE	SD-BSE	2009-09-09	EPA6010B	Sediment	Zinc	10900	TRUE	mg/kg	68.80892043	3.578307146	-125.8600006	452459	5424379	OU 1 North	-3.5551	3.0358	-0.3683	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Aluminum	13950	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Antimony	8.855	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6020	Sediment	Arsenic	11.05	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Barium	555.5	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Beryllium	0.465	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6020	Sediment	Cadmium	3.36	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Calcium	23400	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6020	Sediment	Chromium	26.95	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Cobalt	14.15	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Copper	531	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Iron	73200	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Lead	525	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Magnesium	7720	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Manganese	1345	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA7471A	Sediment	Mercury	0.2275	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Nickel	14.2	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Potassium	2330	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Selenium	1.35	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Silver	1.3	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Sodium	872.5	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Thallium	0.4965	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6020	Sediment	Vanadium	27.65	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBA	SD-CBA-1	2010-04-30	EPA6010B	Sediment	Zinc	7485	TRUE	mg/kg	64.91691651	8.069515727	511.2000122	431679	5408147	OU 1 South	-3.9681	1.1627	0.3161	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Aluminum	12300	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Antimony	10.5	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6020	Sediment	Arsenic	8.5	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Barium	470	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Beryllium	0.4	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6020	Sediment	Cadmium	2.6	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Calcium	23900	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6020	Sediment	Chromium	21.6	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Cobalt	13.8	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Copper	496	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Iron	68900	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Lead	418	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Magnesium	6530	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Manganese	1310	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA7471A	Sediment	Mercury	0.158	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Potassium	2260	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Selenium	1.2	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Silver	1.04	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Sodium	940	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Thallium	0.261	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6020	Sediment	Vanadium	25	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBB	SD-CBB	2010-04-30	EPA6010B	Sediment	Zinc	6520	TRUE	mg/kg	56.43984221	4.487179487	470.3900146	431620	5408065	OU 1 South	-3.8301	1.6276	0.31	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Aluminum	12900	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Antimony	8.42	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6020	Sediment	Arsenic	12	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Barium	523	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Beryllium	0.42	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6020	Sediment	Cadmium	3.55	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Calcium	24600	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6020	Sediment	Chromium	28.7	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Cobalt	13.1	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Copper	477	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Iron	64200	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Lead	426	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Magnesium	7880	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Manganese	1370	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA7471A	Sediment	Mercury	0.244	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Nickel	12.8	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Potassium	2200	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Selenium	1.2	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Silver	1.29	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Sodium	842	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Thallium	0.474	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6020	Sediment	Vanadium	29.6	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBC	SD-CBC	2010-04-30	EPA6010B	Sediment	Zinc	5920	TRUE	mg/kg	68.08144246	7.728930308	527.7999878	431617	5408130	OU 1 South	-3.8284	1.0431	0.1102	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Aluminum	12900	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Antimony	8.07	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6020	Sediment	Arsenic	11.5	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Barium	601	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Beryllium	0.4	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6020	Sediment	Cadmium	3.76	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Calcium	29300	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6020	Sediment	Chromium	25.3	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Cobalt	11.5	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Copper	433	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Iron	65800	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Lead	394	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Magnesium	10100	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Manganese	1240	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA7471A	Sediment	Mercury	0.277	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Nickel	12.8	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Potassium	2180	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Selenium	1.6	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Silver	1.17	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Sodium	869	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Thallium	0.429	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6020	Sediment	Vanadium	29.4	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1
2009–2011 Beach Sediment Study	SD-CBD	SD-CBD	2010-04-30	EPA6010B	Sediment	Zinc	5840	TRUE	mg/kg	60.57882043	11.40100855	494.6799927	431590	5408075	OU 1 South	-3.9939	0.8097	-0.366	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Aluminum	11900	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Antimony	9.63	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6020	Sediment	Arsenic	12.2	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Barium	571	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Beryllium	0.42	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6020	Sediment	Cadmium	3.96	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Calcium	21900	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6020	Sediment	Chromium	26.3	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Cobalt	11.7	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Copper	456	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Iron	67500	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Lead	511	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Magnesium	7550	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Manganese	1230	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA7471A	Sediment	Mercury	0.293	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Nickel	13.8	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Potassium	1910	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Selenium	1.5	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Silver	1.4	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Sodium	597	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Thallium	0.478	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6020	Sediment	Vanadium	26.9	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CBE	SD-CBE	2010-04-30	EPA6010B	Sediment	Zinc	6120	TRUE	mg/kg	68.00930331	9.345596786	514.210022	431639	5408128	OU 1 South	-4.2029	0.7506	0.0829	1
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Aluminum	11150	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Antimony	1.059	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6020	Sediment	Arsenic	6.89	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Barium	572.5	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Beryllium	0.365	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6020	Sediment	Cadmium	5.84	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Calcium	17900	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6020	Sediment	Chromium	18.05	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Cobalt	6.15	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Copper	44.45	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Iron	21100	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6020	Sediment	Lead	266	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Manganese	296.5	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA7471A	Sediment	Mercury	0.6805	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Nickel	16.2	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Potassium	1585	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Silver	0.628	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Sodium	166.5	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Thallium	0.399	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6020	Sediment	Vanadium	25.05	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFA	SD-CFA-1	2011-04-27	EPA6010B	Sediment	Zinc	770.5	TRUE	mg/kg	45.55717407	53.31911352	-1128.569946	417569	5380238	OU 2 Upper Laucustrine CSM Unit	-3.285	-2.7715	-1.1128	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Aluminum	11800	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Antimony	0.844	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6020	Sediment	Arsenic	5.71	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Barium	361	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6020	Sediment	Cadmium	4.07	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Calcium	10700	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6020	Sediment	Chromium	19.1	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Cobalt	6.61	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Copper	43.8	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Iron	21000	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6020	Sediment	Lead	206	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Magnesium	9250	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Manganese	275	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA7471A	Sediment	Mercury	0.568	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Nickel	16.8	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Potassium	1690	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Silver	0.579	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Sodium	179	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Thallium	0.446	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6020	Sediment	Vanadium	25.4	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFB	SD-CFB	2011-04-27	EPA6010B	Sediment	Zinc	581	TRUE	mg/kg	28.18525861	28.6538115	-1124.290039	417563	5380236	OU 2 Upper Laucustrine CSM Unit	-2.467	-2.5447	-0.1745	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Aluminum	11800	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Antimony	0.443	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6020	Sediment	Arsenic	4.02	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Barium	272	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6020	Sediment	Cadmium	1.93	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Calcium	7960	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6020	Sediment	Chromium	16.2	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Cobalt	6.5	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Copper	23.9	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Iron	19800	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6020	Sediment	Lead	113	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Magnesium	7210	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Manganese	273	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA7471A	Sediment	Mercury	0.195	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Nickel	15.3	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Potassium	1740	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Silver	0.21	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Sodium	160	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Thallium	0.266	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6020	Sediment	Vanadium	23.2	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFC	SD-CFC	2011-04-27	EPA6010B	Sediment	Zinc	302	TRUE	mg/kg	50.90455396	42.88833437	-1166.01001	417594	5380206	OU 2 Upper Laucustrine CSM Unit	-1.1246	-1.8329	-0.0116	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Aluminum	9510	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Antimony	0.596	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6020	Sediment	Arsenic	4.28	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Barium	372	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6020	Sediment	Cadmium	2.94	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Calcium	11800	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6020	Sediment	Chromium	15.5	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Cobalt	5.57	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Copper	31	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Iron	18900	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6020	Sediment	Lead	156	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Magnesium	9240	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Manganese	252	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA7471A	Sediment	Mercury	0.37	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Nickel	14.6	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Potassium	1430	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Silver	0.362	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Sodium	144	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Thallium	0.32	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6020	Sediment	Vanadium	22.1	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFD	SD-CFD	2011-04-27	EPA6010B	Sediment	Zinc	462	TRUE	mg/kg	60.03530267	36.81860658	-1119.699951	417543	5380210	OU 2 Upper Laucustrine CSM Unit	-2.3571	-2.2998	-0.6644	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Aluminum	11000	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Antimony	0.888	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6020	Sediment	Arsenic	6.05	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Barium	524	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6020	Sediment	Cadmium	3.74	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Calcium	16400	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6020	Sediment	Chromium	17.2	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Cobalt	5.94	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Copper	37.3	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Iron	20200	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6020	Sediment	Lead	201	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Magnesium	11800	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Manganese	263	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA7471A	Sediment	Mercury	0.532	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Nickel	16.6	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Potassium	1520	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Silver	0.489	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Sodium	141	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Thallium	0.331	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6020	Sediment	Vanadium	25	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CFE	SD-CFE	2011-04-27	EPA6010B	Sediment	Zinc	593	TRUE	mg/kg	44.8881626	47.44152793	-1109.829956	417565	5380270	OU 2 Upper Laucustrine CSM Unit	-2.7845	-2.6238	-1.1532	2
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Aluminum	7810	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Antimony	0.15	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6020	Sediment	Arsenic	1.84	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Barium	83.1	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6020	Sediment	Cadmium	0.235	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Calcium	3200	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6020	Sediment	Chromium	11.7	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Cobalt	5.44	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Copper	14.5	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Iron	15300	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6020	Sediment	Lead	9.78	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Magnesium	4120	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Manganese	241	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA7471A	Sediment	Mercury	0.019	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Nickel	13.3	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Potassium	1130	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Silver	0.094	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Sodium	119	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Thallium	0.129	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6020	Sediment	Vanadium	18.1	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRA	SD-CRA	2011-04-28	EPA6010B	Sediment	Zinc	60.3	TRUE	mg/kg	72.01368727	21.27747822	-1073.119995	417846	5381058	OU 2 Upper Laucustrine CSM Unit	2.2399	-0.0156	0.5393	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Aluminum	8490	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Antimony	0.102	FALSE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6020	Sediment	Arsenic	1.84	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Barium	81.95	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6020	Sediment	Cadmium	0.348	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Calcium	3500	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6020	Sediment	Chromium	12.7	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Cobalt	5.3	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Copper	12.15	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Iron	15800	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6020	Sediment	Lead	12.3	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Magnesium	4120	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Manganese	228	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA7471A	Sediment	Mercury	0.0105	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Nickel	12.95	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Potassium	1105	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Silver	0.054	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Sodium	129.5	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Thallium	0.1445	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6020	Sediment	Vanadium	19.6	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRB	SD-CRB-1	2011-04-28	EPA6010B	Sediment	Zinc	66.65	TRUE	mg/kg	79.60206411	18.07581622	-1063.880005	417862	5381109	OU 2 Upper Laucustrine CSM Unit	2.2344	-0.0442	0.5673	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Aluminum	6590	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Antimony	0.115	FALSE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6020	Sediment	Arsenic	1.87	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Barium	65	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6020	Sediment	Cadmium	0.192	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Calcium	4430	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6020	Sediment	Chromium	11.6	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Cobalt	4.65	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Copper	11.2	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6020	Sediment	Lead	7.18	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Magnesium	3690	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Manganese	170	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Nickel	11	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Potassium	993	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Silver	0.059	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Sodium	118	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Thallium	0.114	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6020	Sediment	Vanadium	18.4	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRC	SD-CRC	2011-04-28	EPA6010B	Sediment	Zinc	48.3	TRUE	mg/kg	71.42142142	15.13513514	-1107.219971	417882	5381053	OU 2 Upper Laucustrine CSM Unit	2.6604	0.1452	0.0509	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Aluminum	7470	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Antimony	0.184	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6020	Sediment	Arsenic	1.81	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Barium	72.2	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6020	Sediment	Cadmium	0.225	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Calcium	3670	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6020	Sediment	Chromium	11.6	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Cobalt	4.36	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Copper	11.1	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Iron	14500	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6020	Sediment	Lead	8.01	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Magnesium	3600	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Manganese	181	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA7471A	Sediment	Mercury	0.012	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Nickel	10.2	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Potassium	965	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Silver	0.063	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Sodium	141	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Thallium	0.107	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6020	Sediment	Vanadium	18.1	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRD	SD-CRD	2011-04-28	EPA6010B	Sediment	Zinc	49.3	TRUE	mg/kg	67.55313791	11.9572882	-1082.329956	417868	5381080	OU 2 Upper Laucustrine CSM Unit	2.4198	0.1343	0.2025	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Aluminum	7540	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Antimony	0.121	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6020	Sediment	Arsenic	2.11	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Barium	70.9	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6020	Sediment	Cadmium	0.409	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Calcium	3590	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6020	Sediment	Chromium	11.6	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Cobalt	5.08	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Copper	11.6	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Iron	14900	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6020	Sediment	Lead	12.7	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Magnesium	4200	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Manganese	195	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Nickel	12.8	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Potassium	1010	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Silver	0.059	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Sodium	107	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Thallium	0.16	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6020	Sediment	Vanadium	18.1	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CRE	SD-CRE	2011-04-28	EPA6010B	Sediment	Zinc	71.9	TRUE	mg/kg	82.09750102	9.58623515	-1098.930054	417881	5381069	OU 2 Upper Laucustrine CSM Unit	2.09	-0.2858	0.3457	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Aluminum	5060	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Antimony	0.09	FALSE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6020	Sediment	Arsenic	1.92	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Barium	65	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6020	Sediment	Cadmium	0.054	FALSE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Calcium	6680	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6020	Sediment	Chromium	4.08	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Cobalt	5.7	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Copper	10.6	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6020	Sediment	Lead	3.24	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Magnesium	3790	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Manganese	275	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Nickel	5.58	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Potassium	787	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Silver	0.026	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Sodium	307	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Thallium	0.066	FALSE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6020	Sediment	Vanadium	25.7	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSA	SD-CSA	2011-05-03	EPA6010B	Sediment	Zinc	34.1	TRUE	mg/kg	94.03840354	4.071579371	-706.3800049	351465	5311859	OU 2 Lower Laucustrine CSM Unit	3.4612	2.0823	-0.8749	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Aluminum	5380	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Antimony	0.066	FALSE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6020	Sediment	Arsenic	2.11	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Barium	73	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6020	Sediment	Cadmium	0.075	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Calcium	7400	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6020	Sediment	Chromium	4.17	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Cobalt	5.91	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Copper	9.9	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Iron	18200	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6020	Sediment	Lead	3.83	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Magnesium	4010	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Manganese	285	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Nickel	5.65	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Potassium	908	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Silver	0.029	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Sodium	310	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Thallium	0.079	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6020	Sediment	Vanadium	26.2	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSB	SD-CSB	2011-05-03	EPA6010B	Sediment	Zinc	35.5	TRUE	mg/kg	90.84320131	7.513270723	-704.289978	351468	5311859	OU 2 Lower Laucustrine CSM Unit	3.2948	1.9261	-1.0395	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Aluminum	5310	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Antimony	0.072	FALSE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6020	Sediment	Arsenic	1.92	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Barium	68.1	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6020	Sediment	Cadmium	0.068	FALSE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Calcium	6130	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6020	Sediment	Chromium	3.9	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Cobalt	6.12	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Copper	11.1	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Iron	18500	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6020	Sediment	Lead	3.53	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Magnesium	4050	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Manganese	273	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Nickel	5.79	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Potassium	843	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Silver	0.029	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Sodium	313	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Thallium	0.071	FALSE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6020	Sediment	Vanadium	24.9	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSC	SD-CSC	2011-05-03	EPA6010B	Sediment	Zinc	36.5	TRUE	mg/kg	88.17971655	7.206754448	-698.0800171	351477	5311859	OU 2 Lower Laucustrine CSM Unit	3.4466	2.1149	-0.827	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Aluminum	5190	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Antimony	0.071	FALSE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6020	Sediment	Arsenic	1.97	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Barium	65.7	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6020	Sediment	Cadmium	0.067	FALSE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Calcium	6420	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6020	Sediment	Chromium	3.91	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Cobalt	5.8	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Copper	11.7	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Iron	18000	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6020	Sediment	Lead	3.29	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Magnesium	3850	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Manganese	279	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Nickel	5.61	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Potassium	799	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Silver	0.029	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Sodium	324	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Thallium	0.064	FALSE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6020	Sediment	Vanadium	25.1	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSD	SD-CSD	2011-05-03	EPA6010B	Sediment	Zinc	34.3	TRUE	mg/kg	94.50702821	3.897916459	-707.75	351462	5311860	OU 2 Lower Laucustrine CSM Unit	3.3217	2.0373	-0.884	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Aluminum	5530	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Antimony	0.075	FALSE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6020	Sediment	Arsenic	2.14	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Barium	72.8	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6020	Sediment	Cadmium	0.066	FALSE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Calcium	6510	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6020	Sediment	Chromium	4.07	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Cobalt	5.85	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Copper	11.3	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Iron	17600	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6020	Sediment	Lead	3.59	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Magnesium	4130	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Manganese	293	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Nickel	5.66	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Potassium	920	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Silver	0.029	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Sodium	309	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Thallium	0.067	FALSE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6020	Sediment	Vanadium	25.1	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-CSE	SD-CSE	2011-05-03	EPA6010B	Sediment	Zinc	34.8	TRUE	mg/kg	89.38828983	7.739594881	-696.7999878	351481	5311857	OU 2 Lower Laucustrine CSM Unit	3.359	1.9372	-0.9174	3
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Aluminum	12950	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Antimony	49.95	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6020	Sediment	Arsenic	12.55	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Barium	1075	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Beryllium	0.445	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6020	Sediment	Cadmium	2.055	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Calcium	38800	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6020	Sediment	Chromium	67.45	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Cobalt	35.75	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Copper	1295	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Iron	112000	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6020	Sediment	Lead	210.5	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Magnesium	8265	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Manganese	2170	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA7471A	Sediment	Mercury	0.06	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Nickel	11.25	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Potassium	2225	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Silver	4.44	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Sodium	1155	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Thallium	0.1045	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6020	Sediment	Vanadium	25.95	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMA	SD-DMA-1	2011-04-22	EPA6010B	Sediment	Zinc	8905	TRUE	mg/kg	96.81849282	2.72211905	208.4299927	444994	5420940	OU 1 North	-3.1405	3.8669	0.0452	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Aluminum	14200	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Antimony	51.2	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6020	Sediment	Arsenic	14.6	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Barium	1210	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6020	Sediment	Cadmium	1.46	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Calcium	41300	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6020	Sediment	Chromium	79.5	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Cobalt	42.2	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Copper	1480	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Iron	131000	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6020	Sediment	Lead	234	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Magnesium	7180	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Manganese	2450	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA7471A	Sediment	Mercury	0.058	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Nickel	11.6	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Potassium	2470	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Selenium	1.1	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Silver	3.57	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Sodium	1340	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Thallium	0.099	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6020	Sediment	Vanadium	28.5	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMB	SD-DMB	2011-04-22	EPA6010B	Sediment	Zinc	10500	TRUE	mg/kg	96.15954191	3.475170303	211.2100067	444988	5420931	OU 1 North	-2.9695	4.37	0.1665	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Aluminum	13100	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Antimony	46.3	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6020	Sediment	Arsenic	14.7	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Barium	1080	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Beryllium	0.45	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6020	Sediment	Cadmium	1.5	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Calcium	38900	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6020	Sediment	Chromium	76.1	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Cobalt	34.6	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Copper	1360	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Iron	115000	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6020	Sediment	Lead	246	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Magnesium	7090	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Manganese	2230	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA7471A	Sediment	Mercury	0.045	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Nickel	10.4	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Potassium	2330	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Selenium	1	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Silver	2.74	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Sodium	1220	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Thallium	0.088	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6020	Sediment	Vanadium	26.7	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMC	SD-DMC	2011-04-22	EPA6010B	Sediment	Zinc	9050	TRUE	mg/kg	97.47538746	1.930012672	198.9400024	445003	5420937	OU 1 North	-2.9981	4.2123	0.0545	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Aluminum	14500	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Antimony	54.9	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6020	Sediment	Arsenic	15.1	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Barium	1260	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Beryllium	0.51	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6020	Sediment	Cadmium	1.65	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Calcium	43400	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6020	Sediment	Chromium	78.6	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Cobalt	37.4	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Copper	1550	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Iron	127000	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6020	Sediment	Lead	212	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Magnesium	7830	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Manganese	2440	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA7471A	Sediment	Mercury	0.059	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Nickel	11.4	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Potassium	2490	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Selenium	1.1	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Silver	5.12	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Sodium	1340	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Thallium	0.098	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6020	Sediment	Vanadium	28.7	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DMD	SD-DMD	2011-04-22	EPA6010B	Sediment	Zinc	10000	TRUE	mg/kg	96.22622919	2.955956252	184.0500031	445024	5420950	OU 1 North	-3.0358	4.2129	0.0032	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Aluminum	12900	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Antimony	51	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6020	Sediment	Arsenic	13.8	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Barium	1120	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Beryllium	0.43	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6020	Sediment	Cadmium	1.92	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Calcium	42400	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6020	Sediment	Chromium	67.9	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Cobalt	36.3	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Copper	1350	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Iron	118000	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6020	Sediment	Lead	211	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Magnesium	9800	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Manganese	2170	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA7471A	Sediment	Mercury	0.085	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Nickel	12.5	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Potassium	2260	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Selenium	0.9	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Silver	4.56	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Sodium	1150	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Thallium	0.124	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6020	Sediment	Vanadium	26.7	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DME	SD-DME	2011-04-22	EPA6010B	Sediment	Zinc	9580	TRUE	mg/kg	93.83932972	5.697387876	200.9299927	445002	5420940	OU 1 North	-3.2074	3.7019	-0.1774	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Aluminum	12400	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Antimony	31.8	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6020	Sediment	Arsenic	11.3	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Barium	852	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6020	Sediment	Cadmium	3.29	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Calcium	43300	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6020	Sediment	Chromium	48.3	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Cobalt	18.2	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Copper	906	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Iron	95600	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Lead	332	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Magnesium	9910	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Manganese	1740	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA7471A	Sediment	Mercury	0.18	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Potassium	2120	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Selenium	1.4	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Silver	1.74	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Sodium	829	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Thallium	0.161	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6020	Sediment	Vanadium	24.9	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSA	SD-DSA	2010-04-29	EPA6010B	Sediment	Zinc	8720	TRUE	mg/kg	97.17531471	2.655818238	-78.6999969	436992	5413668	OU 1 North	-4.0824	2.342	-0.3643	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Aluminum	12100	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Antimony	27.9	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6020	Sediment	Arsenic	10	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Barium	809	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6020	Sediment	Cadmium	2.73	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Calcium	39100	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6020	Sediment	Chromium	46.5	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Cobalt	18.7	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Copper	834	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Iron	91700	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Lead	263	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Magnesium	8550	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Manganese	1790	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA7471A	Sediment	Mercury	0.15	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Potassium	2070	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Selenium	1.6	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Silver	1.99	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Sodium	814	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Thallium	0.161	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6020	Sediment	Vanadium	25.7	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSB	SD-DSB	2010-04-29	EPA6010B	Sediment	Zinc	8200	TRUE	mg/kg	98.58277214	1.346869032	-75.1600037	436984	5413668	OU 1 North	-3.8053	2.5666	-0.205	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Aluminum	12100	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Antimony	25.3	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6020	Sediment	Arsenic	10	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Barium	748	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6020	Sediment	Cadmium	2.82	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Calcium	40100	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6020	Sediment	Chromium	38.7	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Cobalt	15.4	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Copper	767	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Iron	95900	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Lead	360	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Magnesium	9020	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Manganese	1770	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA7471A	Sediment	Mercury	0.137	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Nickel	9.59	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Potassium	2040	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Selenium	1.4	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Silver	2.2	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Sodium	739	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Thallium	0.141	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6020	Sediment	Vanadium	24.6	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-DSC	SD-DSC	2010-04-29	EPA6010B	Sediment	Zinc	9080	TRUE	mg/kg	98.35332385	1.636511486	-78.2200012	436991	5413668	OU 1 North	-4.0787	2.3715	-0.3354	1
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Aluminum	5470	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Antimony	0.115	FALSE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6020	Sediment	Arsenic	2.72	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Barium	54.8	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6020	Sediment	Cadmium	0.169	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Calcium	5050	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6020	Sediment	Chromium	9.58	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Cobalt	4.05	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Copper	8.5	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Iron	11300	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6020	Sediment	Lead	6.03	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Magnesium	3680	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Manganese	204	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Nickel	9.77	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Potassium	913	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Silver	0.04	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Sodium	59	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Thallium	0.094	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6020	Sediment	Vanadium	13.6	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENA	SD-ENA	2011-04-29	EPA6010B	Sediment	Zinc	38.5	TRUE	mg/kg	85.8077953	12.40702172	-427.7799988	405441	5321354	OU 2 Middle Laucustrine CSM Unit	2.8433	0.0608	-0.6295	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Aluminum	5130	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Antimony	0.101	FALSE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6020	Sediment	Arsenic	2.02	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Barium	53.2	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Beryllium	0.18	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6020	Sediment	Cadmium	0.133	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Calcium	3960	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6020	Sediment	Chromium	10.3	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Cobalt	4.2	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Copper	8.9	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Iron	11300	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6020	Sediment	Lead	4.7	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Magnesium	3260	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Manganese	191	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Nickel	10.5	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Potassium	868	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Silver	0.053	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Sodium	60	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Thallium	0.092	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6020	Sediment	Vanadium	13.3	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENB	SD-ENB	2011-04-29	EPA6010B	Sediment	Zinc	36.9	TRUE	mg/kg	83.77005891	16.16900264	-410.769989	405412	5321356	OU 2 Middle Laucustrine CSM Unit	3.1222	0.4016	-0.2696	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Aluminum	5640	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Antimony	0.119	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6020	Sediment	Arsenic	3.18	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Barium	61	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6020	Sediment	Cadmium	0.181	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Calcium	4860	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6020	Sediment	Chromium	9.6	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Cobalt	4.45	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Copper	8.9	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Iron	12400	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6020	Sediment	Lead	6.13	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Magnesium	3920	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Manganese	211	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Potassium	1000	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Silver	0.044	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Sodium	55	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Thallium	0.095	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6020	Sediment	Vanadium	12.9	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-ENC	SD-ENC	2011-04-29	EPA6010B	Sediment	Zinc	38.9	TRUE	mg/kg	83.07222787	5.707019329	-487.2600098	405532	5321345	OU 2 Middle Laucustrine CSM Unit	2.8589	0.0883	-0.6917	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Aluminum	5760	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Antimony	0.133	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6020	Sediment	Arsenic	3.1	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Barium	58.3	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6020	Sediment	Cadmium	0.166	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Calcium	5070	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6020	Sediment	Chromium	11.7	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Cobalt	4.63	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Copper	9.7	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Iron	12400	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6020	Sediment	Lead	5.59	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Magnesium	4000	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Manganese	216	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Nickel	10.7	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Potassium	1070	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Silver	0.057	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Sodium	65	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Thallium	0.096	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6020	Sediment	Vanadium	15.5	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-END	SD-END	2011-04-29	EPA6010B	Sediment	Zinc	37.4	TRUE	mg/kg	80.83623693	18.04455707	-464.3200073	405527	5321370	OU 2 Middle Laucustrine CSM Unit	3.2008	0.2376	-0.5524	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Aluminum	5930	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Antimony	0.129	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6020	Sediment	Arsenic	3.23	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Barium	61.4	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6020	Sediment	Cadmium	0.14	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Calcium	6370	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6020	Sediment	Chromium	10.8	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Cobalt	5.41	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Copper	10.4	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Iron	13000	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6020	Sediment	Lead	5.84	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Magnesium	4050	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Manganese	282	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Nickel	12.2	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Potassium	1010	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Silver	0.048	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Sodium	63	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Thallium	0.093	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6020	Sediment	Vanadium	15.4	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-ENE	SD-ENE	2011-04-29	EPA6010B	Sediment	Zinc	36.7	TRUE	mg/kg	81.09662183	18.32837047	-439.25	405485	5321370	OU 2 Middle Laucustrine CSM Unit	3.22	0.5228	-0.7651	3
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Aluminum	11000	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Antimony	1.18	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6020	Sediment	Arsenic	4.08	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Barium	255	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6020	Sediment	Cadmium	5.03	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Calcium	7480	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6020	Sediment	Chromium	17.7	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Cobalt	5.45	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Copper	51.8	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Iron	17500	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6020	Sediment	Lead	246	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Magnesium	7360	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Manganese	206	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA7471A	Sediment	Mercury	0.864	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Nickel	14.5	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Potassium	1530	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Selenium	0.4	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Silver	0.802	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Sodium	157	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Thallium	0.546	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6020	Sediment	Vanadium	22.9	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVA	SD-EVA	2011-04-22	EPA6010B	Sediment	Zinc	620	TRUE	mg/kg	52.11281544	42.62246413	-607.9299927	425066	5394221	OU 1 South	-2.9253	-3.0827	0.5207	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Aluminum	11300	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Antimony	1.63	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6020	Sediment	Arsenic	6.05	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Barium	364	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Beryllium	0.41	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6020	Sediment	Cadmium	6.8	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Calcium	11900	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6020	Sediment	Chromium	18	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Cobalt	5.94	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Copper	60.2	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Iron	19700	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6020	Sediment	Lead	349	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Magnesium	10400	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Manganese	266	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA7471A	Sediment	Mercury	1.08	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Nickel	15.6	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Potassium	1650	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Silver	0.813	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Sodium	159	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Thallium	0.445	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6020	Sediment	Vanadium	23.5	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVB	SD-EVB	2011-04-22	EPA6010B	Sediment	Zinc	812	TRUE	mg/kg	46.49805447	52.14007782	-599.7700195	425056	5394194	OU 1 South	-3.4781	-3.1943	-0.1843	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Aluminum	8630	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Antimony	0.667	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6020	Sediment	Arsenic	3.37	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Barium	165	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6020	Sediment	Cadmium	2.75	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Calcium	5580	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6020	Sediment	Chromium	13.7	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Cobalt	4.74	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Copper	31.7	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Iron	17400	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6020	Sediment	Lead	136	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Magnesium	5300	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Manganese	192	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA7471A	Sediment	Mercury	0.38	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Nickel	12	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Potassium	1300	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Silver	0.393	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Sodium	126	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Thallium	0.317	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6020	Sediment	Vanadium	19	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVC	SD-EVC	2011-04-22	EPA6010B	Sediment	Zinc	335	TRUE	mg/kg	66.80082559	30.59855521	-613.4699707	425070	5394197	OU 1 South	-1.9643	-2.4837	0.5908	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Aluminum	11100	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Antimony	1.12	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6020	Sediment	Arsenic	4.67	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Barium	265	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6020	Sediment	Cadmium	4.44	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Calcium	7750	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6020	Sediment	Chromium	16.7	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Cobalt	5.63	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Copper	48.3	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Iron	18800	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6020	Sediment	Lead	218	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Magnesium	7770	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Manganese	219	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA7471A	Sediment	Mercury	0.62	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Nickel	14.6	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Potassium	1580	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Silver	0.635	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Sodium	165	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Thallium	0.426	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6020	Sediment	Vanadium	23.6	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVD	SD-EVD	2011-04-22	EPA6010B	Sediment	Zinc	555	TRUE	mg/kg	50.99657741	40.18522247	-603.7999878	425062	5394224	OU 1 South	-2.6371	-2.8406	0.283	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Aluminum	10400	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Antimony	0.951	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6020	Sediment	Arsenic	3.69	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Barium	233	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6020	Sediment	Cadmium	3.87	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Calcium	7050	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6020	Sediment	Chromium	15	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Cobalt	5.27	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Copper	43.3	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Iron	18300	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6020	Sediment	Lead	211	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Magnesium	6890	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Manganese	197	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA7471A	Sediment	Mercury	0.646	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Nickel	13.3	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Potassium	1500	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Silver	0.611	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Sodium	147	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Thallium	0.419	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6020	Sediment	Vanadium	19.6	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-EVE	SD-EVE	2011-04-22	EPA6010B	Sediment	Zinc	498	TRUE	mg/kg	52.77663724	37.30240197	-598.3099976	425057	5394247	OU 1 South	-2.6486	-2.8345	0.4755	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Aluminum	9480	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Antimony	5.68	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6020	Sediment	Arsenic	9.79	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Barium	602	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6020	Sediment	Cadmium	5.19	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Calcium	26000	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6020	Sediment	Chromium	22.3	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Cobalt	8.24	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Copper	205	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Iron	26900	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Lead	271	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Magnesium	16200	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Manganese	401	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA7471A	Sediment	Mercury	0.506	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Nickel	16	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Potassium	1480	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Selenium	1	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Silver	1.77	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Sodium	174	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Thallium	0.616	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6020	Sediment	Vanadium	24.8	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCA	SD-FCA	2011-04-23	EPA6010B	Sediment	Zinc	1690	TRUE	mg/kg	65.27650005	32.16804661	234.6399994	428506	5407839	OU 1 South	-3.935	-1.8482	-1.3555	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Aluminum	8400	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Antimony	3.64	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6020	Sediment	Arsenic	7.325	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Barium	427	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6020	Sediment	Cadmium	3.675	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Calcium	18250	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6020	Sediment	Chromium	19.35	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Cobalt	7.09	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Copper	131.5	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Iron	22200	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Lead	196.5	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Magnesium	12250	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Manganese	306.5	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA7471A	Sediment	Mercury	0.3775	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Nickel	14.45	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Potassium	1235	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Selenium	0.65	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Silver	1.485	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Sodium	137	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6020	Sediment	Vanadium	24.15	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCB	SD-FCB-1	2011-04-23	EPA6010B	Sediment	Zinc	1155	TRUE	mg/kg	59.6502761	28.97054957	223.6999969	428514	5407829	OU 1 South	-3.3855	-1.9275	-1.0636	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Aluminum	8160	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Antimony	5.94	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6020	Sediment	Arsenic	7.55	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Barium	470	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6020	Sediment	Cadmium	4.21	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Calcium	24700	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6020	Sediment	Chromium	21.4	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Cobalt	7.6	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Copper	156	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Iron	24900	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Lead	189	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Magnesium	14400	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Manganese	376	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA7471A	Sediment	Mercury	0.324	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Nickel	13.3	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Potassium	1250	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Selenium	0.7	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Silver	1.43	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Sodium	160	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Thallium	0.356	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6020	Sediment	Vanadium	24.4	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCC	SD-FCC	2011-04-23	EPA6010B	Sediment	Zinc	1490	TRUE	mg/kg	75.49069983	20.98448258	244.0700073	428490	5407851	OU 1 South	-3.5587	-1.542	-1.3533	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Aluminum	8930	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Antimony	5.03	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6020	Sediment	Arsenic	8.87	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Barium	508	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Beryllium	0.32	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6020	Sediment	Cadmium	4.99	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Calcium	26100	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6020	Sediment	Chromium	22.6	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Cobalt	8.04	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Copper	187	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Iron	26500	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Lead	232	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Magnesium	14900	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Manganese	422	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA7471A	Sediment	Mercury	0.456	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Nickel	15	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Potassium	1440	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Selenium	0.7	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Silver	1.88	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Sodium	168	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Thallium	0.428	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6020	Sediment	Vanadium	26	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCD	SD-FCD	2011-04-23	EPA6010B	Sediment	Zinc	1690	TRUE	mg/kg	66.41775984	31.84661958	232.6600037	428506	5407837	OU 1 South	-3.7609	-1.7245	-1.2785	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Aluminum	8290	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Antimony	2.99	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6020	Sediment	Arsenic	6.55	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Barium	428	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6020	Sediment	Cadmium	3.42	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Calcium	21500	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6020	Sediment	Chromium	18.5	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Cobalt	6.96	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Copper	120	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Iron	22100	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Lead	186	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Magnesium	12200	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Manganese	302	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA7471A	Sediment	Mercury	0.414	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Nickel	14.4	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Potassium	1200	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Silver	1.39	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Sodium	142	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Thallium	0.408	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6020	Sediment	Vanadium	23.7	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-FCE	SD-FCE	2011-04-23	EPA6010B	Sediment	Zinc	1150	TRUE	mg/kg	55.06187868	22.31689998	226.5299988	428526	5407833	OU 1 South	-3.4245	-1.8877	-1.232	2
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Aluminum	8870	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Antimony	0.312	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6020	Sediment	Arsenic	8.11	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Barium	99.6	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Beryllium	0.41	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6020	Sediment	Cadmium	0.144	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Calcium	14800	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6020	Sediment	Chromium	10.5	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Cobalt	6.42	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Copper	14.2	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Iron	19900	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6020	Sediment	Lead	8.82	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Magnesium	7040	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Manganese	356	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Nickel	8.62	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Potassium	1960	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Silver	0.072	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Sodium	115	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Thallium	0.144	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6020	Sediment	Vanadium	15.9	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCA	SD-HCA	2011-05-04	EPA6010B	Sediment	Zinc	46.1	TRUE	mg/kg	72.98334175	9.581019687	-608.9099731	397708	5298097	OU 2 Middle Laucustrine CSM Unit	3.1521	0.9227	-1.9427	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Aluminum	9565	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Antimony	0.278	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6020	Sediment	Arsenic	7.64	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Barium	108.65	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Beryllium	0.405	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6020	Sediment	Cadmium	0.1155	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Calcium	16250	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6020	Sediment	Chromium	9.53	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Cobalt	7.47	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Copper	15.95	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Iron	21000	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6020	Sediment	Lead	8.92	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Magnesium	7705	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Manganese	421	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA7471A	Sediment	Mercury	0.0045	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Potassium	2010	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Silver	0.067	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Sodium	113.5	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Thallium	0.1285	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6020	Sediment	Vanadium	15	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCB	SD-HCB-1	2011-05-04	EPA6010B	Sediment	Zinc	48.65	TRUE	mg/kg	55.40052447	10.52397209	-591.1099854	397727	5298126	OU 2 Middle Laucustrine CSM Unit	3.1247	0.9251	-2.0088	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Aluminum	9090	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Antimony	0.347	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6020	Sediment	Arsenic	7.54	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Barium	87.6	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6020	Sediment	Cadmium	0.128	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Calcium	16500	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6020	Sediment	Chromium	9.03	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Cobalt	6.46	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Iron	20100	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6020	Sediment	Lead	8.12	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Magnesium	7710	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Manganese	385	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Nickel	11	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Potassium	1850	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Silver	0.058	FALSE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Sodium	97	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Thallium	0.116	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6020	Sediment	Vanadium	14.8	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCC	SD-HCC	2011-05-04	EPA6010B	Sediment	Zinc	45.7	TRUE	mg/kg	92.83923378	4.192157256	-598.7600098	397734	5298121	OU 2 Middle Laucustrine CSM Unit	3.186	0.7074	-2.0886	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Aluminum	9040	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Antimony	0.293	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6020	Sediment	Arsenic	8.01	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Barium	87.6	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Beryllium	0.36	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6020	Sediment	Cadmium	0.125	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Calcium	17200	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6020	Sediment	Chromium	11.4	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Cobalt	6.07	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Copper	14.1	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Iron	20000	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6020	Sediment	Lead	8.51	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Magnesium	7970	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Manganese	378	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Nickel	9.59	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Potassium	2070	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Silver	0.062	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Sodium	109	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Thallium	0.122	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6020	Sediment	Vanadium	15.8	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCD	SD-HCD	2011-05-04	EPA6010B	Sediment	Zinc	47.3	TRUE	mg/kg	86.51538074	11.35653051	-615.9299927	397701	5298086	OU 2 Middle Laucustrine CSM Unit	3.2435	0.7772	-2.1012	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Aluminum	8870	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Antimony	0.336	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6020	Sediment	Arsenic	8.27	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Barium	94.7	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6020	Sediment	Cadmium	0.111	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Calcium	16000	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6020	Sediment	Chromium	9.44	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Cobalt	5.96	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Copper	13.6	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Iron	18900	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6020	Sediment	Lead	8.3	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Magnesium	7350	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Manganese	380	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Nickel	9.07	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Potassium	2150	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Silver	0.062	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Sodium	94	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Thallium	0.122	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6020	Sediment	Vanadium	14.5	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HCE	SD-HCE	2011-05-04	EPA6010B	Sediment	Zinc	43.9	TRUE	mg/kg	86.38449771	12.23865375	-579.4299927	397763	5298159	OU 2 Middle Laucustrine CSM Unit	3.2501	0.8926	-2.234	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Aluminum	16200	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Antimony	0.291	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6020	Sediment	Arsenic	4.02	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Barium	159	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Beryllium	0.62	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6020	Sediment	Cadmium	0.71	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Calcium	8760	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6020	Sediment	Chromium	21.8	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Cobalt	11.4	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Copper	29.2	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Iron	25600	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6020	Sediment	Lead	25.5	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Magnesium	8070	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Manganese	598	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA7471A	Sediment	Mercury	0.037	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Nickel	28.8	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Potassium	2940	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Silver	0.13	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Sodium	242	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Thallium	0.312	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6020	Sediment	Vanadium	25.2	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTA	SD-HTA	2011-05-05	EPA6010B	Sediment	Zinc	118	TRUE	mg/kg	31.48690994	62.16516729	-891.5200195	408271	5331108	OU 2 Upper Laucustrine CSM Unit	1.9323	-0.255	0.4762	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Aluminum	16500	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Antimony	0.276	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6020	Sediment	Arsenic	4.86	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Barium	157	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Beryllium	0.62	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6020	Sediment	Cadmium	0.489	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Calcium	9520	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6020	Sediment	Chromium	25.2	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Cobalt	11.7	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Copper	29.7	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Iron	26800	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6020	Sediment	Lead	20.6	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Magnesium	9020	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Manganese	493	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA7471A	Sediment	Mercury	0.029	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Nickel	28.7	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Potassium	2810	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Silver	0.128	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Sodium	257	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Thallium	0.24	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6020	Sediment	Vanadium	29.2	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTB	SD-HTB	2011-05-05	EPA6010B	Sediment	Zinc	102	TRUE	mg/kg	33.34346813	63.95054221	-784.5100098	408454	5331238	OU 2 Upper Laucustrine CSM Unit	2.4231	-0.1158	0.1684	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Aluminum	17700	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Antimony	0.289	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6020	Sediment	Arsenic	5.28	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Barium	171	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Beryllium	0.67	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6020	Sediment	Cadmium	0.917	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Calcium	8830	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6020	Sediment	Chromium	31.6	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Cobalt	12.1	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Copper	31.9	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Iron	28100	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6020	Sediment	Lead	27.3	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Magnesium	9360	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Manganese	544	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA7471A	Sediment	Mercury	0.029	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Nickel	29.5	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Potassium	3340	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Silver	0.127	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Sodium	279	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Thallium	0.413	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6020	Sediment	Vanadium	36.7	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTC	SD-HTC	2011-05-05	EPA6010B	Sediment	Zinc	123	TRUE	mg/kg	31.39382977	66.02351522	-804.0700073	408471	5331222	OU 2 Upper Laucustrine CSM Unit	2.2292	-0.3773	0.509	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Aluminum	15300	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Antimony	0.257	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6020	Sediment	Arsenic	4.26	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Barium	138	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Beryllium	0.56	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6020	Sediment	Cadmium	0.319	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Calcium	7730	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6020	Sediment	Chromium	23.2	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Cobalt	11.6	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Copper	28	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Iron	26300	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6020	Sediment	Lead	14	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Magnesium	7860	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Manganese	495	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA7471A	Sediment	Mercury	0.013	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Nickel	27.2	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Potassium	2690	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Silver	0.098	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Sodium	260	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Thallium	0.242	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6020	Sediment	Vanadium	27.8	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTD	SD-HTD	2011-05-05	EPA6010B	Sediment	Zinc	82.8	TRUE	mg/kg	39.33982141	49.96488412	-811.2800293	408503	5331223	OU 2 Upper Laucustrine CSM Unit	3.0445	0.4925	0.2599	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Aluminum	8210	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Antimony	0.227	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6020	Sediment	Arsenic	6.64	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Barium	56.3	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6020	Sediment	Cadmium	0.074	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Calcium	14400	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6020	Sediment	Chromium	6.93	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Cobalt	4.46	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Copper	12.4	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Iron	17800	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6020	Sediment	Lead	6.4	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Magnesium	6860	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Manganese	318	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Nickel	7.48	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Potassium	1740	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Silver	0.052	FALSE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Sodium	115	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Thallium	0.093	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6020	Sediment	Vanadium	11.9	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-HTE	SD-HTE	2011-05-05	EPA6010B	Sediment	Zinc	40	TRUE	mg/kg	29.53383766	62.87057861	-794.9500122	408439	5331224	OU 2 Upper Laucustrine CSM Unit	3.4086	0.9013	-2.1482	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Aluminum	7720	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Antimony	0.146	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6020	Sediment	Arsenic	6.27	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Barium	56.4	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6020	Sediment	Cadmium	0.124	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Calcium	11100	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6020	Sediment	Chromium	8.5	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Cobalt	4.62	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Copper	10.1	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Iron	14500	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6020	Sediment	Lead	5.79	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Magnesium	6390	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Manganese	248	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Nickel	9.93	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Potassium	1390	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Silver	0.042	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Sodium	147	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Thallium	0.095	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6020	Sediment	Vanadium	11.3	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBA	SD-JBA	2011-05-02	EPA6010B	Sediment	Zinc	37.1	TRUE	mg/kg	92.18639442	3.537855049	-741.8499756	381189	5309119	OU 2 Lower Laucustrine CSM Unit	3.383	0.5458	-1.8351	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Aluminum	6870	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Antimony	0.17	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6020	Sediment	Arsenic	5.96	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Barium	47	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6020	Sediment	Cadmium	0.084	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Calcium	10100	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6020	Sediment	Chromium	8.43	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Cobalt	4.72	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Copper	9.6	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Iron	13800	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6020	Sediment	Lead	5.15	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Magnesium	5850	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Manganese	251	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Nickel	9.21	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Potassium	1220	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Sodium	133	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Thallium	0.087	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6020	Sediment	Vanadium	11.8	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBB	SD-JBB	2011-05-02	EPA6010B	Sediment	Zinc	34.5	TRUE	mg/kg	95.62715765	1.866213038	-716.710022	381119	5309096	OU 2 Lower Laucustrine CSM Unit	3.6297	0.741	-1.7635	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Aluminum	7260	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Antimony	0.134	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6020	Sediment	Arsenic	5.68	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Barium	54.5	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6020	Sediment	Cadmium	0.105	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Calcium	10000	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6020	Sediment	Chromium	8.77	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Cobalt	4.15	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Copper	9.4	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Iron	14300	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6020	Sediment	Lead	5.23	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Magnesium	5930	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Manganese	249	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Nickel	9.21	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Potassium	1340	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Sodium	141	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Thallium	0.088	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6020	Sediment	Vanadium	11.7	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBC	SD-JBC	2011-05-02	EPA6010B	Sediment	Zinc	35.3	TRUE	mg/kg	95.38245332	2.529612528	-724.5200195	381139	5309101	OU 2 Lower Laucustrine CSM Unit	3.481	0.6444	-1.7479	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Aluminum	7590	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Antimony	0.141	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6020	Sediment	Arsenic	6.51	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Barium	46.2	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6020	Sediment	Cadmium	0.09	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Calcium	9120	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6020	Sediment	Chromium	9.03	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Cobalt	3.92	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Copper	8.6	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Iron	14600	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6020	Sediment	Lead	5.37	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Magnesium	5930	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Manganese	244	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Nickel	9.07	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Potassium	1360	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Silver	0.034	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Sodium	121	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Thallium	0.097	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6020	Sediment	Vanadium	13.3	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBD	SD-JBD	2011-05-02	EPA6010B	Sediment	Zinc	34.1	TRUE	mg/kg	97.05117953	0.969612155	-718.1199951	381131	5309103	OU 2 Lower Laucustrine CSM Unit	3.8567	0.6307	-1.7439	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Aluminum	7765	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Antimony	0.187	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6020	Sediment	Arsenic	5.925	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Barium	54.25	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6020	Sediment	Cadmium	0.104	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Calcium	10280	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6020	Sediment	Chromium	9.475	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Cobalt	4.265	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Copper	8.5	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Iron	15350	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6020	Sediment	Lead	5.435	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Magnesium	6350	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Manganese	263	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA7471A	Sediment	Mercury	0.0025	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Nickel	9.475	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Potassium	1365	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Silver	0.0465	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Sodium	123	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Thallium	0.085	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6020	Sediment	Vanadium	12.65	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-JBE	SD-JBE-1	2011-05-02	EPA6010B	Sediment	Zinc	36.2	TRUE	mg/kg	72.55009198	1.133595187	-713.2999878	381100	5309087	OU 2 Lower Laucustrine CSM Unit	3.6828	0.6361	-1.7491	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Aluminum	5180	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Antimony	0.119	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6020	Sediment	Arsenic	1.67	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Barium	43.3	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Beryllium	0.13	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6020	Sediment	Cadmium	0.131	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Calcium	2870	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6020	Sediment	Chromium	7.21	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Cobalt	3.92	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Copper	10	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Iron	11700	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6020	Sediment	Lead	6.42	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Magnesium	3550	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Manganese	161	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Nickel	8.86	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Potassium	617	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Silver	0.075	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Sodium	115	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Thallium	0.079	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6020	Sediment	Vanadium	17.2	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-KFA	SD-KFA	2011-04-26	EPA6010B	Sediment	Zinc	36	TRUE	mg/kg	74.32984554	0.52815147	-400.2999878	417128	5382621	OU 2 Transitional CSM Unit	2.9494	0.5452	-0.0637	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Aluminum	4560	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Antimony	0.072	FALSE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6020	Sediment	Arsenic	1.68	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Barium	36.3	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Beryllium	0.11	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6020	Sediment	Cadmium	0.118	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Calcium	2370	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6020	Sediment	Chromium	7.94	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Cobalt	3.17	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Copper	9.2	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Iron	10600	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6020	Sediment	Lead	5.12	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Magnesium	2890	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Manganese	148	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Nickel	6.52	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Potassium	569	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Silver	0.045	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Sodium	98	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Thallium	0.061	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6020	Sediment	Vanadium	17.6	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFB	SD-KFB	2011-04-26	EPA6010B	Sediment	Zinc	28.7	TRUE	mg/kg	69.76883819	0.680476333	-400.519989	417129	5382616	OU 2 Transitional CSM Unit	3.2118	0.7279	0.009	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Aluminum	4800	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Antimony	0.088	FALSE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6020	Sediment	Arsenic	1.62	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Barium	41.5	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6020	Sediment	Cadmium	0.126	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Calcium	2490	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6020	Sediment	Chromium	8.05	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Cobalt	3.32	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Copper	9.3	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Iron	11400	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6020	Sediment	Lead	5.18	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Magnesium	2980	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Manganese	151	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Nickel	7.46	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Potassium	599	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Silver	0.048	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Sodium	106	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Thallium	0.059	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6020	Sediment	Vanadium	15.8	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFC	SD-KFC	2011-04-26	EPA6010B	Sediment	Zinc	34.2	TRUE	mg/kg	89.84042026	0.733472098	-396.9599915	417124	5382625	OU 2 Transitional CSM Unit	3.1208	0.7498	0.1144	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Aluminum	5250	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Antimony	0.148	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6020	Sediment	Arsenic	1.38	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Barium	40.3	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Beryllium	0.13	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6020	Sediment	Cadmium	0.125	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Calcium	2660	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6020	Sediment	Chromium	7.6	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Cobalt	3.09	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Copper	8.6	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Iron	11000	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6020	Sediment	Lead	4.94	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Magnesium	3120	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Manganese	152	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Nickel	7.19	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Potassium	638	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Silver	0.06	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Sodium	136	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Thallium	0.059	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6020	Sediment	Vanadium	18.7	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFD	SD-KFD	2011-04-26	EPA6010B	Sediment	Zinc	33.8	TRUE	mg/kg	74.76730069	1.264670174	-398.9700012	417124	5382638	OU 2 Transitional CSM Unit	2.9148	0.3391	0.1466	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Aluminum	5290	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Antimony	0.079	FALSE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6020	Sediment	Arsenic	1.54	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Barium	61	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Beryllium	0.13	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6020	Sediment	Cadmium	0.12	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Calcium	2570	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6020	Sediment	Chromium	8.82	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Cobalt	3.74	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Copper	9.3	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Iron	11800	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6020	Sediment	Lead	5.27	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Magnesium	3330	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Manganese	161	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Nickel	7.57	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Potassium	643	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Silver	0.057	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Sodium	118	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Thallium	0.057	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6020	Sediment	Vanadium	17.3	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KFE	SD-KFE	2011-04-26	EPA6010B	Sediment	Zinc	33.3	TRUE	mg/kg	73.03877367	1.092074942	-402.2399902	417127	5382640	OU 2 Transitional CSM Unit	3.1076	0.9974	-0.0748	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Aluminum	7050	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Antimony	0.048	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6020	Sediment	Arsenic	3.65	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Barium	55.6	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6020	Sediment	Cadmium	0.238	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Calcium	4020	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6020	Sediment	Chromium	14.5	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Cobalt	4.69	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Copper	11.2	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Iron	12400	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6020	Sediment	Lead	8.86	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Magnesium	4550	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Manganese	196	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA7471A	Sediment	Mercury	0.013	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Nickel	15.1	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Potassium	843	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Silver	0.075	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Sodium	162	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Thallium	0.104	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6020	Sediment	Vanadium	18.5	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLA	SD-KLA	2011-04-24	EPA6010B	Sediment	Zinc	50.9	TRUE	mg/kg	63.81435102	7.761876367	1331.079956	418160	5392203	OU 2 Transitional CSM Unit	2.6859	-0.3446	-0.0589	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Aluminum	7550	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Antimony	0.057	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6020	Sediment	Arsenic	1.98	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Barium	61.7	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6020	Sediment	Cadmium	0.238	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Calcium	4820	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6020	Sediment	Chromium	16	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Cobalt	4.86	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Copper	14.5	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Iron	13800	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6020	Sediment	Lead	9.25	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Magnesium	5090	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Manganese	207	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA7471A	Sediment	Mercury	0.018	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Nickel	12.9	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Potassium	926	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Silver	0.108	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Sodium	143	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Thallium	0.123	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6020	Sediment	Vanadium	21.8	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLB	SD-KLB	2011-04-24	EPA6010B	Sediment	Zinc	53.8	TRUE	mg/kg	69.21348315	21.25638407	1318.900024	418152	5392186	OU 2 Transitional CSM Unit	2.4931	-0.3271	0.3024	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Aluminum	10400	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Antimony	0.114	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6020	Sediment	Arsenic	2.57	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Barium	94.6	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Beryllium	0.48	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6020	Sediment	Cadmium	0.458	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Calcium	5160	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6020	Sediment	Chromium	20.3	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Cobalt	6.34	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Copper	21.4	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Iron	18000	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6020	Sediment	Lead	15.2	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Magnesium	6160	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Manganese	269	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA7471A	Sediment	Mercury	0.04	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Nickel	16.4	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Potassium	1220	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Selenium	0.5	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Silver	0.179	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Sodium	183	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Thallium	0.18	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6020	Sediment	Vanadium	29.9	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLC	SD-KLC	2011-04-24	EPA6010B	Sediment	Zinc	81.4	TRUE	mg/kg	44.29689823	43.58339114	1307.430054	418180	5392186	OU 2 Transitional CSM Unit	1.9757	-0.7139	0.7139	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Aluminum	7910	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Antimony	0.081	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6020	Sediment	Arsenic	2.23	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Barium	74.3	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6020	Sediment	Cadmium	0.373	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Calcium	4180	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6020	Sediment	Chromium	15.4	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Cobalt	5.8	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Copper	15.9	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Iron	14800	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6020	Sediment	Lead	11.8	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Magnesium	5290	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Manganese	241	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA7471A	Sediment	Mercury	0.022	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Nickel	15.6	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Potassium	1050	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Silver	0.127	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Sodium	116	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Thallium	0.148	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6020	Sediment	Vanadium	22.3	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLD	SD-KLD	2011-04-24	EPA6010B	Sediment	Zinc	61.9	TRUE	mg/kg	43.51739482	14.9170712	1323.310059	418177	5392202	OU 2 Transitional CSM Unit	2.197	-0.5883	0.5004	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Aluminum	7220	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Antimony	0.048	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6020	Sediment	Arsenic	1.73	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Barium	64.9	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6020	Sediment	Cadmium	0.239	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Calcium	5830	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6020	Sediment	Chromium	11.7	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Cobalt	5.1	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Copper	13	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Iron	13500	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6020	Sediment	Lead	8.15	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Magnesium	5240	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Manganese	219	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA7471A	Sediment	Mercury	0.018	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Nickel	14.1	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Potassium	881	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Silver	0.102	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Sodium	158	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Thallium	0.102	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6020	Sediment	Vanadium	19.2	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-KLE	SD-KLE	2011-04-24	EPA6010B	Sediment	Zinc	49.4	TRUE	mg/kg	57.8561354	19.20075223	1329.26001	418169	5392205	OU 2 Transitional CSM Unit	2.3889	-0.2646	0.0232	3
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Aluminum	9350	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Antimony	0.163	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6020	Sediment	Arsenic	3.03	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Barium	94.7	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Beryllium	0.21	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6020	Sediment	Cadmium	0.744	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Calcium	2490	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6020	Sediment	Chromium	11	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Cobalt	4.3	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Copper	11.6	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Iron	15700	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6020	Sediment	Lead	44.7	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Magnesium	3620	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Manganese	174	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA7471A	Sediment	Mercury	0.044	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Nickel	10.4	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Potassium	923	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Silver	0.076	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Sodium	97	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Thallium	0.199	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6020	Sediment	Vanadium	21.6	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYA	SD-LYA	2011-04-24	EPA6010B	Sediment	Zinc	109	TRUE	mg/kg	55.31451213	6.419019316	-431.7900085	417317	5381436	OU 2 Upper Laucustrine CSM Unit	0.5989	-1.3908	0.7679	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Aluminum	8320	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Antimony	0.265	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6020	Sediment	Arsenic	3.09	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Barium	90.9	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6020	Sediment	Cadmium	0.847	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Calcium	3620	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6020	Sediment	Chromium	11.1	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Cobalt	4.18	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Copper	14.5	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Iron	17600	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6020	Sediment	Lead	43.4	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Magnesium	3910	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Manganese	169	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA7471A	Sediment	Mercury	0.084	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Nickel	9.31	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Potassium	799	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Silver	0.124	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Sodium	107	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Thallium	0.178	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6020	Sediment	Vanadium	22.1	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYB	SD-LYB	2011-04-24	EPA6010B	Sediment	Zinc	108	TRUE	mg/kg	49.51301928	6.499701849	-500.8699951	417362	5381367	OU 2 Upper Laucustrine CSM Unit	0.1667	-1.4606	0.4294	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Aluminum	9580	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Antimony	0.406	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6020	Sediment	Arsenic	3.745	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Barium	174.5	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6020	Sediment	Cadmium	2.2	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Calcium	6050	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6020	Sediment	Chromium	12.05	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Cobalt	4.39	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Copper	20.45	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Iron	16950	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6020	Sediment	Lead	105	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Magnesium	5455	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Manganese	177.5	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA7471A	Sediment	Mercury	0.228	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Nickel	10.85	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Potassium	951	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Silver	0.2275	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Sodium	132.5	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Thallium	0.281	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6020	Sediment	Vanadium	21.7	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYC	SD-LYC-1	2011-04-24	EPA6010B	Sediment	Zinc	274	TRUE	mg/kg	55.6527389	15.6187525	-404.1300049	417290	5381443	OU 2 Upper Laucustrine CSM Unit	-1.5558	-2.3018	0.0785	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Aluminum	7470	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Antimony	0.309	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6020	Sediment	Arsenic	2.72	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Barium	106	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Beryllium	0.17	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6020	Sediment	Cadmium	1.95	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Calcium	4760	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6020	Sediment	Chromium	9.78	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Cobalt	4.07	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Copper	16.4	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Iron	14800	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6020	Sediment	Lead	69.1	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Magnesium	4840	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Manganese	168	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA7471A	Sediment	Mercury	0.129	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Nickel	11.3	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Potassium	810	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Silver	0.158	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Sodium	115	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Thallium	0.181	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6020	Sediment	Vanadium	23.8	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYD	SD-LYD	2011-04-24	EPA6010B	Sediment	Zinc	168	TRUE	mg/kg	55.1450926	5.42735466	-438.5400085	417321	5381428	OU 2 Upper Laucustrine CSM Unit	-0.8934	-2.233	0.2384	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Aluminum	6430	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Antimony	0.34	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6020	Sediment	Arsenic	3.48	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Barium	143	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6020	Sediment	Cadmium	2.17	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Calcium	5240	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6020	Sediment	Chromium	11.3	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Cobalt	3.39	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Copper	15.9	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Iron	13300	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6020	Sediment	Lead	113	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Magnesium	4950	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Manganese	152	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA7471A	Sediment	Mercury	0.214	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Nickel	8.82	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Potassium	778	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Silver	0.156	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Sodium	81	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Thallium	0.281	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6020	Sediment	Vanadium	19	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-LYE	SD-LYE	2011-04-24	EPA6010B	Sediment	Zinc	275	TRUE	mg/kg	74.49400866	13.35212969	-472.769989	417359	5381431	OU 2 Upper Laucustrine CSM Unit	-1.8714	-2.6033	-0.0676	2
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Aluminum	7880	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Antimony	0.239	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6020	Sediment	Arsenic	4.44	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Barium	69.1	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6020	Sediment	Cadmium	0.127	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Calcium	6550	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6020	Sediment	Chromium	12.1	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Cobalt	6.55	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Copper	15.2	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Iron	17600	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6020	Sediment	Lead	6.77	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Magnesium	4860	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Manganese	277	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Nickel	14.5	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Potassium	1180	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Silver	0.057	FALSE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Sodium	121	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Thallium	0.086	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6020	Sediment	Vanadium	15.3	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGA	SD-MGA	2011-05-04	EPA6010B	Sediment	Zinc	43.8	TRUE	mg/kg	58.28714838	33.00219596	-274.4299927	398377	5315471	OU 2 Middle Laucustrine CSM Unit	3.218	0.6506	-0.6365	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Aluminum	7350	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Antimony	0.242	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6020	Sediment	Arsenic	4.44	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Barium	72	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Cadmium	0.121	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Calcium	4120	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6020	Sediment	Chromium	14.5	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Cobalt	6.68	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Copper	14.4	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Iron	17700	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6020	Sediment	Lead	6.3	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Magnesium	4360	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Manganese	308	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Nickel	15.4	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Potassium	1110	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Silver	0.056	FALSE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Sodium	111	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Thallium	0.094	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6020	Sediment	Vanadium	16.5	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGB	SD-MGB	2011-05-04	EPA6010B	Sediment	Zinc	43.4	TRUE	mg/kg	67.27309277	26.13327973	-284.3800049	398400	5315447	OU 2 Middle Laucustrine CSM Unit	3.464	0.8501	-0.1606	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Aluminum	7690	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Antimony	0.215	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6020	Sediment	Arsenic	4.16	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Barium	71.5	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6020	Sediment	Cadmium	0.14	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Calcium	4180	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6020	Sediment	Chromium	12.5	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Cobalt	6.35	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Copper	13.8	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Iron	17300	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6020	Sediment	Lead	6.86	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Magnesium	4510	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Manganese	239	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Nickel	14.5	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Potassium	1240	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Silver	0.064	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Sodium	103	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Thallium	0.11	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6020	Sediment	Vanadium	15.1	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGC	SD-MGC	2011-05-04	EPA6010B	Sediment	Zinc	47.4	TRUE	mg/kg	72.8810187	16.84241942	-306.9599915	398401	5315495	OU 2 Middle Laucustrine CSM Unit	3.2622	0.5366	-0.2501	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Aluminum	7280	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Antimony	0.217	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6020	Sediment	Arsenic	3.95	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Barium	75.4	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6020	Sediment	Cadmium	0.163	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Calcium	5660	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6020	Sediment	Chromium	12.2	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Cobalt	6.11	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Copper	14.4	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Iron	16900	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6020	Sediment	Lead	7.07	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Magnesium	4600	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Manganese	261	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Nickel	14.3	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Potassium	1160	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Silver	0.052	FALSE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Sodium	106	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Thallium	0.1	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6020	Sediment	Vanadium	14.8	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGD	SD-MGD	2011-05-04	EPA6010B	Sediment	Zinc	45.8	TRUE	mg/kg	76.5418391	16.26122943	-299.769989	398419	5315442	OU 2 Middle Laucustrine CSM Unit	3.0176	0.5624	-0.5122	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Aluminum	8620	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Antimony	0.26	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6020	Sediment	Arsenic	4.46	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Barium	81.2	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6020	Sediment	Cadmium	0.145	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Calcium	6050	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6020	Sediment	Chromium	12.4	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Cobalt	6.36	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Copper	15	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Iron	17800	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6020	Sediment	Lead	8.38	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Magnesium	4770	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Manganese	289	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Nickel	14.1	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Potassium	1330	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Silver	0.061	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Sodium	107	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Thallium	0.107	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6020	Sediment	Vanadium	15.5	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MGE	SD-MGE	2011-05-04	EPA6010B	Sediment	Zinc	46.5	TRUE	mg/kg	67.97944334	26.36238742	-277.8200073	398376	5315480	OU 2 Middle Laucustrine CSM Unit	3.0994	0.583	-0.5186	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Aluminum	7470	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Antimony	0.306	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6020	Sediment	Arsenic	5.82	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Barium	75.4	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6020	Sediment	Cadmium	0.142	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Calcium	7020	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6020	Sediment	Chromium	15.4	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Cobalt	7.46	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Copper	17.7	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Iron	18500	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6020	Sediment	Lead	7.69	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Magnesium	5000	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Manganese	289	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Nickel	17.9	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Potassium	1280	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Silver	0.103	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Sodium	124	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Thallium	0.108	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6020	Sediment	Vanadium	17.2	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPA	SD-MPA	2011-05-01	EPA6010B	Sediment	Zinc	46	TRUE	mg/kg	51.29688747	17.00917797	338.1400146	397002	5321890	OU 2 Middle Laucustrine CSM Unit	3.2802	0.7588	-0.7923	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Aluminum	8300	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Antimony	0.266	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6020	Sediment	Arsenic	5.46	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Barium	78.6	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6020	Sediment	Cadmium	0.139	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Calcium	7920	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6020	Sediment	Chromium	16.2	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Cobalt	7.18	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Copper	18.8	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Iron	19100	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6020	Sediment	Lead	7.1	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Magnesium	5200	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Manganese	323	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Nickel	19.9	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Potassium	1170	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Silver	0.104	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Sodium	119	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Thallium	0.087	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6020	Sediment	Vanadium	17.2	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPB	SD-MPB	2011-05-01	EPA6010B	Sediment	Zinc	48.5	TRUE	mg/kg	63.08425428	20.74419548	364.2099915	397109	5321946	OU 2 Middle Laucustrine CSM Unit	3.2867	0.7898	-0.8182	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Aluminum	8280	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Antimony	0.328	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6020	Sediment	Arsenic	6.09	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Barium	115	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6020	Sediment	Cadmium	0.155	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Calcium	7440	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6020	Sediment	Chromium	15.7	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Cobalt	7.51	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Copper	19	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Iron	18600	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6020	Sediment	Lead	8.38	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Magnesium	5210	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Manganese	311	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA7471A	Sediment	Mercury	0.008	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Nickel	18.4	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Potassium	1290	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Silver	0.098	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Sodium	132	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Thallium	0.116	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6020	Sediment	Vanadium	17.2	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPC	SD-MPC	2011-05-01	EPA6010B	Sediment	Zinc	50.1	TRUE	mg/kg	56.58071965	23.96574947	337.3099976	397095	5321916	OU 2 Middle Laucustrine CSM Unit	2.9059	0.7488	-0.9402	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Aluminum	7555	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Antimony	0.2655	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Barium	75.3	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Beryllium	0.255	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6020	Sediment	Cadmium	0.1275	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Calcium	6700	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6020	Sediment	Chromium	14.85	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Cobalt	7.165	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Copper	17.1	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Iron	17500	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6020	Sediment	Lead	7.145	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Magnesium	4880	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Manganese	301	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Nickel	18.4	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Potassium	1140	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Silver	0.0785	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Sodium	122.5	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Thallium	0.087	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6020	Sediment	Vanadium	16.05	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPD	SD-MPD-1	2011-05-01	EPA6010B	Sediment	Zinc	45.55	TRUE	mg/kg	55.48541465	24.37509545	335.5299988	397072	5321909	OU 2 Middle Laucustrine CSM Unit	3.2363	0.7558	-0.7434	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Aluminum	6570	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Antimony	0.228	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6020	Sediment	Arsenic	5.28	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Barium	66.3	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Beryllium	0.19	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6020	Sediment	Cadmium	0.112	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Calcium	6060	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6020	Sediment	Chromium	15.1	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Cobalt	6.72	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Copper	16	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Iron	15400	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6020	Sediment	Lead	6.63	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Magnesium	4230	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Manganese	275	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA7471A	Sediment	Mercury	0.006	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Nickel	16.9	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Potassium	1040	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Silver	0.07	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Sodium	98	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Thallium	0.077	FALSE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6020	Sediment	Vanadium	16.1	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3
2009–2011 Beach Sediment Study	SD-MPE	SD-MPE	2011-05-01	EPA6010B	Sediment	Zinc	39.5	TRUE	mg/kg	48.0617049	10.74827206	393.8999939	397135	5321980	OU 2 Middle Laucustrine CSM Unit	3.334	0.7812	-0.7959	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Aluminum	9080	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Antimony	0.206	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6020	Sediment	Arsenic	3.58	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Barium	106	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6020	Sediment	Cadmium	0.394	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Calcium	2090	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6020	Sediment	Chromium	14.2	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Cobalt	5.78	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Copper	16.1	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Iron	15800	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6020	Sediment	Lead	13.1	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Magnesium	3580	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Manganese	204	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA7471A	Sediment	Mercury	0.015	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Nickel	14	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Potassium	1480	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Silver	0.06	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Sodium	94	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Thallium	0.204	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6020	Sediment	Vanadium	16.8	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAA	SD-NAA	2011-04-30	EPA6010B	Sediment	Zinc	80.9	TRUE	mg/kg	48.64546525	17.66784452	-836.4899902	399050	5321755	OU 2 Middle Laucustrine CSM Unit	2.0693	-0.3873	0.8407	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Aluminum	7680	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Antimony	0.177	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6020	Sediment	Arsenic	3.08	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Barium	79.4	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6020	Sediment	Cadmium	0.489	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Calcium	1630	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6020	Sediment	Chromium	13.2	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Cobalt	5.04	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Copper	13.5	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Iron	14300	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6020	Sediment	Lead	17.4	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Magnesium	3380	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Manganese	168	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA7471A	Sediment	Mercury	0.015	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Nickel	11.9	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Potassium	1270	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Silver	0.057	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Sodium	66	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Thallium	0.298	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6020	Sediment	Vanadium	14.2	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAB	SD-NAB	2011-04-30	EPA6010B	Sediment	Zinc	99.2	TRUE	mg/kg	53.17821782	13.56435644	-837.9299927	399091	5321763	OU 2 Middle Laucustrine CSM Unit	1.6972	-0.7911	1.124	3
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Aluminum	8770	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Antimony	0.221	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6020	Sediment	Arsenic	3.67	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Barium	86.7	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6020	Sediment	Cadmium	1.18	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Calcium	2150	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6020	Sediment	Chromium	14	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Cobalt	5.43	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Copper	17.2	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Iron	15100	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6020	Sediment	Lead	38.1	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Magnesium	3490	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Manganese	189	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA7471A	Sediment	Mercury	0.081	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Nickel	13.7	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Potassium	1350	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Silver	0.079	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Sodium	92	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Thallium	0.259	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6020	Sediment	Vanadium	16	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAC	SD-NAC	2011-04-30	EPA6010B	Sediment	Zinc	133	TRUE	mg/kg	40.27011041	21.91443218	-814.9099731	399063	5321780	OU 2 Middle Laucustrine CSM Unit	0.4747	-1.7175	1.3243	2
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Aluminum	7790	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Antimony	0.172	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6020	Sediment	Arsenic	2.84	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Barium	82.4	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6020	Sediment	Cadmium	0.54	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Calcium	1520	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6020	Sediment	Chromium	11.6	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Cobalt	5.29	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Iron	13900	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6020	Sediment	Lead	25.7	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Magnesium	3330	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Manganese	186	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA7471A	Sediment	Mercury	0.027	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Nickel	12.2	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Potassium	1460	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Silver	0.056	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Sodium	72	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Thallium	0.243	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6020	Sediment	Vanadium	13.4	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAD	SD-NAD	2011-04-30	EPA6010B	Sediment	Zinc	112	TRUE	mg/kg	58.86545887	21.57212157	-825.0100098	399204	5321808	OU 2 Middle Laucustrine CSM Unit	1.2628	-1.0391	1.3674	3
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Aluminum	7910	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Antimony	0.22	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6020	Sediment	Arsenic	3.12	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Barium	80.7	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6020	Sediment	Cadmium	0.914	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Calcium	1810	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6020	Sediment	Chromium	13.5	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Cobalt	5.24	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Copper	16.2	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Iron	13900	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6020	Sediment	Lead	36.8	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Magnesium	3320	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Manganese	163	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA7471A	Sediment	Mercury	0.052	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Potassium	1290	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Silver	0.082	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Sodium	94	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Thallium	0.312	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6020	Sediment	Vanadium	15.5	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NAE	SD-NAE	2011-04-30	EPA6010B	Sediment	Zinc	130	TRUE	mg/kg	49.78949479	23.7670409	-816.4699707	399137	5321797	OU 2 Middle Laucustrine CSM Unit	0.6464	-1.5061	1.4386	2
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Aluminum	13500	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Antimony	36.6	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6020	Sediment	Arsenic	14.9	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Barium	868	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Beryllium	0.45	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6020	Sediment	Cadmium	2.32	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Calcium	41800	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6020	Sediment	Chromium	47.3	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Cobalt	23.8	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Copper	994	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Iron	93500	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Lead	741	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Magnesium	8990	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Manganese	2200	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA7471A	Sediment	Mercury	0.087	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Nickel	12.3	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Potassium	2850	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Selenium	1.4	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Silver	2.64	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Sodium	1190	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Thallium	0.158	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6020	Sediment	Vanadium	28.1	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPA	SD-NPA	2010-04-30	EPA6010B	Sediment	Zinc	8420	TRUE	mg/kg	70.23772769	5.063291139	-157.9100037	443422	5419101	OU 1 North	-3.7948	2.7623	-0.112	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Aluminum	9855	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Antimony	30.1	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6020	Sediment	Arsenic	9.455	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Barium	835.5	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Beryllium	0.375	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6020	Sediment	Cadmium	2.985	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Calcium	38500	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6020	Sediment	Chromium	36.5	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Cobalt	17.75	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Copper	697.5	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Iron	65650	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Lead	689.5	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Magnesium	12250	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Manganese	1320	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA7471A	Sediment	Mercury	0.1115	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Nickel	13.85	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Potassium	1750	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Selenium	0.8	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Silver	2.225	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Sodium	587	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Thallium	0.2175	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6020	Sediment	Vanadium	22.85	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPB	SD-NPB-1	2010-04-30	EPA6010B	Sediment	Zinc	5675	TRUE	mg/kg	82.46966893	9.191856878	-168.6399994	443421	5419090	OU 1 North	-4.2506	1.6018	-0.541	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Aluminum	12400	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Antimony	49.9	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6020	Sediment	Arsenic	13.6	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Barium	1010	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Beryllium	0.47	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6020	Sediment	Cadmium	2.18	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Calcium	42000	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6020	Sediment	Chromium	51.2	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Cobalt	23.2	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Copper	1150	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Iron	97300	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Lead	278	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Magnesium	9070	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Manganese	1790	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA7471A	Sediment	Mercury	0.074	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Nickel	13.4	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Potassium	2380	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Selenium	0.95	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Silver	2.85	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Sodium	1070	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Thallium	0.166	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6020	Sediment	Vanadium	24	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NPC	SD-NPC	2010-04-30	EPA6010B	Sediment	Zinc	8010	TRUE	mg/kg	85.75066205	5.520472601	-154.6799927	443426	5419105	OU 1 North	-3.5151	3.049	-0.36	1
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Aluminum	7760	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Antimony	0.187	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6020	Sediment	Arsenic	6.57	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Barium	69.3	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6020	Sediment	Cadmium	0.189	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Calcium	11600	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6020	Sediment	Chromium	19.1	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Cobalt	7.5	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Copper	18	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Iron	19000	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6020	Sediment	Lead	8.5	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Magnesium	5870	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Manganese	311	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA7471A	Sediment	Mercury	0.01	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Nickel	20.3	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Potassium	931	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Silver	0.095	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Sodium	121	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Thallium	0.081	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6020	Sediment	Vanadium	21.1	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZA	SD-NZA	2011-04-26	EPA6010B	Sediment	Zinc	48.3	TRUE	mg/kg	61.22236128	34.84564038	484.3399963	408230	5332552	OU 2 Upper Laucustrine CSM Unit	3.044	0.361	-1.118	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Aluminum	6800	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Antimony	0.201	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6020	Sediment	Arsenic	5.25	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Barium	49	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Beryllium	0.2	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6020	Sediment	Cadmium	0.146	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Calcium	8990	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6020	Sediment	Chromium	15.8	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Cobalt	6.61	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Copper	14.4	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Iron	16700	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6020	Sediment	Lead	6.55	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Magnesium	5070	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Manganese	254	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Nickel	18	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Potassium	751	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Silver	0.083	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Sodium	112	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Thallium	0.06	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6020	Sediment	Vanadium	17.5	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZB	SD-NZB	2011-04-26	EPA6010B	Sediment	Zinc	40.5	TRUE	mg/kg	76.40472107	22.11237769	427.4200134	408226	5332494	OU 2 Upper Laucustrine CSM Unit	3.3182	0.4711	-1.0038	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Aluminum	7330	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Antimony	0.234	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6020	Sediment	Arsenic	6.02	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Barium	56.8	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Beryllium	0.23	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6020	Sediment	Cadmium	0.143	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Calcium	10200	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6020	Sediment	Chromium	16.8	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Cobalt	7.16	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Copper	16.1	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Iron	17600	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6020	Sediment	Lead	7.43	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Magnesium	5470	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Manganese	292	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA7471A	Sediment	Mercury	0.007	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Nickel	19.7	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Potassium	818	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Silver	0.097	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Sodium	113	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Thallium	0.061	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6020	Sediment	Vanadium	19.1	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZC	SD-NZC	2011-04-26	EPA6010B	Sediment	Zinc	42.6	TRUE	mg/kg	70.58641018	27.6140242	410.6499939	408237	5332473	OU 2 Upper Laucustrine CSM Unit	3.3131	0.5185	-1.1053	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Aluminum	8370	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Antimony	0.186	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6020	Sediment	Arsenic	5.36	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Barium	64.1	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6020	Sediment	Cadmium	0.185	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Calcium	11000	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6020	Sediment	Chromium	18.6	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Cobalt	7.42	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Copper	17.3	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6020	Sediment	Lead	7.71	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Magnesium	6010	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Manganese	309	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Nickel	21.1	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Potassium	1000	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Silver	0.092	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Thallium	0.084	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6020	Sediment	Vanadium	20.4	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZD	SD-NZD	2011-04-26	EPA6010B	Sediment	Zinc	50	TRUE	mg/kg	66.94586954	32.26887237	403.2799988	408173	5332482	OU 2 Upper Laucustrine CSM Unit	3.2059	0.319	-0.8819	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Aluminum	8155	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Antimony	0.191	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6020	Sediment	Arsenic	5.905	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Barium	73.05	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Beryllium	0.28	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6020	Sediment	Cadmium	0.2185	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Calcium	9665	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6020	Sediment	Chromium	19.85	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Cobalt	7.61	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Copper	18	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Iron	19150	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6020	Sediment	Lead	8.995	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Magnesium	6065	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Manganese	318	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA7471A	Sediment	Mercury	0.009	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Nickel	20.6	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Potassium	1010	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Silver	0.096	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Sodium	126	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Thallium	0.1	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6020	Sediment	Vanadium	22.45	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-NZE	SD-NZE-1	2011-04-26	EPA6010B	Sediment	Zinc	52.9	TRUE	mg/kg	63.89723402	32.17652543	481.980011	408239	5332547	OU 2 Upper Laucustrine CSM Unit	3.0592	0.3179	-0.8215	3
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Aluminum	6650	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Antimony	8.42	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6020	Sediment	Arsenic	9.38	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Barium	521	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6020	Sediment	Cadmium	3.54	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Calcium	34500	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Chromium	20.3	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Cobalt	8.4	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Copper	260	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Iron	42300	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Lead	441	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Magnesium	14700	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Manganese	700	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.109	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Nickel	10.3	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Potassium	1180	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Selenium	1.1	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Silver	0.945	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Sodium	363	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Thallium	0.117	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Vanadium	31.4	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVA	SD-RVA	2009-09-10	EPA6010B	Sediment	Zinc	4480	TRUE	mg/kg	95.26925013	4.730749874	-157.8800049	448249	5422098	OU 1 North	-4.2794	0.2209	-1.6588	1
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Aluminum	7410	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Antimony	8.64	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6020	Sediment	Arsenic	9.96	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Barium	711	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Beryllium	1.38	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6020	Sediment	Cadmium	5.32	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Calcium	41000	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Chromium	22.5	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Cobalt	7.4	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Copper	312	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Iron	50300	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Lead	372	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Magnesium	17400	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Manganese	904	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.669	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Nickel	10.2	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Potassium	1180	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Selenium	1.4	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Silver	1.22	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Sodium	336	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Thallium	0.203	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Vanadium	30.7	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVB	SD-RVB	2009-09-10	EPA6010B	Sediment	Zinc	4710	TRUE	mg/kg	93.31844029	6.681559708	-154.1600037	448266	5422109	OU 1 North	-4.8351	-0.8425	-0.8838	2
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Aluminum	7600	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Antimony	13.4	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6020	Sediment	Arsenic	8.99	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Barium	631	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Beryllium	0.12	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6020	Sediment	Cadmium	4.29	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Chromium	24.5	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Cobalt	9.9	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Copper	368	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Iron	48800	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Lead	338	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Magnesium	17800	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Manganese	938	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.124	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Nickel	10.6	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Potassium	1190	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Selenium	1.1	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Silver	2.33	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Sodium	366	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Thallium	0.135	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Vanadium	31.9	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVC	SD-RVC	2009-09-10	EPA6010B	Sediment	Zinc	4520	TRUE	mg/kg	95.62198068	4.378019324	-147.7899933	448270	5422117	OU 1 North	-4.3092	0.5997	-1.8797	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Aluminum	6930	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Antimony	10.8	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6020	Sediment	Arsenic	8.16	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Barium	425	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6020	Sediment	Cadmium	3.3	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Calcium	34600	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Chromium	21.1	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Cobalt	8.2	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Copper	287	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Iron	43000	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Lead	304	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Magnesium	14300	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Manganese	783	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.103	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Nickel	9.77	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Potassium	1110	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Selenium	0.9	FALSE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Silver	0.831	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Sodium	330	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Thallium	0.149	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Vanadium	30.9	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVD	SD-RVD	2009-09-10	EPA6010B	Sediment	Zinc	3740	TRUE	mg/kg	96.52834008	3.228744939	-149.4700012	448263	5422113	OU 1 North	-3.9484	0.3801	-1.5194	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Aluminum	8130	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Antimony	18	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6020	Sediment	Arsenic	9.64	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Barium	631	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Beryllium	0.15	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6020	Sediment	Cadmium	3.72	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Calcium	36000	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Chromium	32.7	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Cobalt	14.5	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Copper	541	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Iron	56600	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Lead	311	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Magnesium	12700	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Manganese	1080	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA7471A_2mm	Sediment	Mercury	0.157	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Nickel	10.5	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Potassium	1330	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Selenium	1.2	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Silver	2.24	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Sodium	495	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Thallium	0.145	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Vanadium	32.2	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-RVE	SD-RVE	2009-09-10	EPA6010B	Sediment	Zinc	5100	TRUE	mg/kg	94.12951382	2.824288884	-150.7100067	448264	5422112	OU 1 North	-4.0957	1.272	-1.0902	1
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Aluminum	7820	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Antimony	0.206	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6020	Sediment	Arsenic	5.96	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Barium	47.9	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6020	Sediment	Cadmium	0.071	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Calcium	13500	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6020	Sediment	Chromium	8.41	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Cobalt	4.55	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Copper	16.4	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Iron	17200	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6020	Sediment	Lead	5.64	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Magnesium	6340	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Manganese	269	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Nickel	7.99	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Potassium	1430	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Silver	0.036	FALSE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Sodium	92	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Thallium	0.103	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6020	Sediment	Vanadium	12.6	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBA	SD-SBA	2011-05-05	EPA6010B	Sediment	Zinc	40.9	TRUE	mg/kg	48.59260743	0.510868476	-801.6699829	399319	5300438	OU 2 Middle Laucustrine CSM Unit	3.4497	0.8484	-1.9169	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Aluminum	8220	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Antimony	0.244	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6020	Sediment	Arsenic	5.7	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Barium	58.1	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Beryllium	0.35	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6020	Sediment	Cadmium	0.076	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Calcium	13200	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6020	Sediment	Chromium	8.67	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Cobalt	4.5	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Copper	10.7	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Iron	18400	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6020	Sediment	Lead	6.87	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Magnesium	6670	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Manganese	273	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Nickel	7.17	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Potassium	1670	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Silver	0.045	FALSE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Sodium	119	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Thallium	0.096	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6020	Sediment	Vanadium	12.6	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBB	SD-SBB	2011-05-05	EPA6010B	Sediment	Zinc	40.1	TRUE	mg/kg	69.31364725	1.067438148	-769.7600098	399303	5300565	OU 2 Middle Laucustrine CSM Unit	3.6037	1.037	-1.911	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Aluminum	12955	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Antimony	0.5425	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6020	Sediment	Arsenic	5.35	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Barium	107.35	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Beryllium	0.515	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6020	Sediment	Cadmium	0.3605	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Calcium	9385	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6020	Sediment	Chromium	19.42	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Cobalt	8.54	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Copper	21.7	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Iron	23250	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6020	Sediment	Lead	16.025	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Magnesium	7940	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Manganese	399	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA7471A	Sediment	Mercury	0.0215	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Nickel	20.84	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Potassium	2530	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Silver	0.2095	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Sodium	191.5	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Thallium	0.203	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6020	Sediment	Vanadium	23.75	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBC	SD-SBC-1	2011-05-05	EPA6010B	Sediment	Zinc	77.3	TRUE	mg/kg	70.79859367	1.501757911	-770.4699707	399313	5300636	OU 2 Middle Laucustrine CSM Unit	2.6237	-0.2068	-0.2406	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Aluminum	7170	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Antimony	0.189	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6020	Sediment	Arsenic	5.47	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Barium	46.6	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6020	Sediment	Cadmium	0.076	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Calcium	12500	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6020	Sediment	Chromium	6.6	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Cobalt	4.44	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Copper	10.9	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Iron	15500	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6020	Sediment	Lead	5.34	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Magnesium	6870	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Manganese	270	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Nickel	6.68	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Potassium	1180	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Silver	0.04	FALSE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Sodium	72	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Thallium	0.084	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6020	Sediment	Vanadium	10.4	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBD	SD-SBD	2011-05-05	EPA6010B	Sediment	Zinc	35.6	TRUE	mg/kg	76.64204432	0.489119585	-807.0900269	399336	5300528	OU 2 Middle Laucustrine CSM Unit	3.3718	0.6739	-2.0797	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Aluminum	7330	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Antimony	0.199	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6020	Sediment	Arsenic	6	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Barium	50.6	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6020	Sediment	Cadmium	0.079	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Calcium	12700	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6020	Sediment	Chromium	7.52	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Cobalt	5.56	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Copper	8.8	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Iron	15800	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6020	Sediment	Lead	5.49	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Magnesium	6330	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Manganese	255	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Nickel	7.16	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Potassium	1580	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Silver	0.041	FALSE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Sodium	91	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Thallium	0.105	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6020	Sediment	Vanadium	10.6	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SBE	SD-SBE	2011-05-05	EPA6010B	Sediment	Zinc	35.4	TRUE	mg/kg	83.11026768	0.429484618	-811.3699951	399334	5300478	OU 2 Middle Laucustrine CSM Unit	3.7615	0.9308	-2.0027	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Aluminum	8100	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Antimony	0.194	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6020	Sediment	Arsenic	8.16	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Barium	56.3	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6020	Sediment	Cadmium	0.167	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Calcium	3680	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6020	Sediment	Chromium	7.43	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Cobalt	3.93	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Copper	9.9	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Iron	14700	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6020	Sediment	Lead	6.63	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Magnesium	6210	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Manganese	234	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Nickel	8.03	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Potassium	1590	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Silver	0.04	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Sodium	140	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Thallium	0.151	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6020	Sediment	Vanadium	11.2	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCA	SD-SCA	2011-05-02	EPA6010B	Sediment	Zinc	49.4	TRUE	mg/kg	97.39531156	1.843317972	-805.710022	355275	5311003	OU 2 Lower Laucustrine CSM Unit	3.2471	0.2437	-1.06	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Aluminum	8310	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Antimony	0.233	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6020	Sediment	Arsenic	9.19	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Barium	58	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6020	Sediment	Cadmium	0.163	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Calcium	4090	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6020	Sediment	Chromium	8.32	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Cobalt	4.14	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Copper	8.3	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Iron	14800	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6020	Sediment	Lead	7	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Magnesium	6340	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Manganese	235	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Nickel	7.99	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Potassium	1530	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Silver	0.038	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Sodium	133	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Thallium	0.152	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6020	Sediment	Vanadium	11.2	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCB	SD-SCB	2011-05-02	EPA6010B	Sediment	Zinc	47.8	TRUE	mg/kg	97.2238806	2.218905473	-798.0200195	355276	5311012	OU 2 Lower Laucustrine CSM Unit	3.4661	0.3692	-1.2041	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Aluminum	8060	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Antimony	0.172	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6020	Sediment	Arsenic	8.75	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Barium	54.3	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Beryllium	0.3	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6020	Sediment	Cadmium	0.188	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Calcium	3100	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6020	Sediment	Chromium	8.47	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Cobalt	3.93	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Copper	8	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Iron	14800	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6020	Sediment	Lead	7.21	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Magnesium	6100	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Manganese	227	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Nickel	8.2	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Potassium	1560	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Silver	0.03	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Sodium	121	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Thallium	0.154	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6020	Sediment	Vanadium	11.9	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCC	SD-SCC	2011-05-02	EPA6010B	Sediment	Zinc	53.1	TRUE	mg/kg	96.77193684	2.13871677	-794.5999756	355291	5311023	OU 2 Lower Laucustrine CSM Unit	3.2634	-0.0324	-0.862	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Aluminum	8330	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Antimony	0.182	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6020	Sediment	Arsenic	8.56	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Barium	57.9	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6020	Sediment	Cadmium	0.165	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Calcium	5050	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6020	Sediment	Chromium	8.26	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Cobalt	3.98	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Copper	8.6	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Iron	15000	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6020	Sediment	Lead	6.84	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Magnesium	6440	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Manganese	247	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Nickel	7.86	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Potassium	1580	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Silver	0.032	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Sodium	139	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Thallium	0.133	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6020	Sediment	Vanadium	12.1	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCD	SD-SCD	2011-05-02	EPA6010B	Sediment	Zinc	49.1	TRUE	mg/kg	97.45184591	2.197030498	-798.1300049	355251	5311000	OU 2 Lower Laucustrine CSM Unit	3.423	0.3943	-1.3344	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Aluminum	8030	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Antimony	0.158	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6020	Sediment	Arsenic	8.01	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Barium	51.9	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Beryllium	0.33	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6020	Sediment	Cadmium	0.162	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Calcium	3690	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6020	Sediment	Chromium	9.11	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Cobalt	3.81	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Copper	8.3	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Iron	14300	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6020	Sediment	Lead	6.4	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Magnesium	6100	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Manganese	231	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Nickel	7.72	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Potassium	1570	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Silver	0.028	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Sodium	135	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Thallium	0.143	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6020	Sediment	Vanadium	12.1	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SCE	SD-SCE	2011-05-02	EPA6010B	Sediment	Zinc	49.1	TRUE	mg/kg	96.57142857	2.305764411	-807.9799805	355303	5311014	OU 2 Lower Laucustrine CSM Unit	3.4645	0.1855	-0.9292	3
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Aluminum	11500	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Antimony	0.788	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6020	Sediment	Arsenic	5.47	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Barium	232	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Beryllium	0.47	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6020	Sediment	Cadmium	4.35	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Calcium	7540	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6020	Sediment	Chromium	12.8	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Cobalt	4.5	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Copper	31	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Iron	15500	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6020	Sediment	Lead	274	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Magnesium	6150	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Manganese	195	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA7471A	Sediment	Mercury	0.509	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Nickel	10.7	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Potassium	1150	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Selenium	0.14	FALSE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Silver	0.322	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Sodium	203	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Thallium	0.518	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6020	Sediment	Vanadium	16.6	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRA	SD-SRA	2010-04-27	EPA6010B	Sediment	Zinc	537	TRUE	mg/kg	48.69621257	33.43743803	638.5	423888	5393478	OU 1 South	-2.9307	-2.9003	0.2059	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Aluminum	14800	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Antimony	1.09	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6020	Sediment	Arsenic	8.81	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Barium	419	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Beryllium	0.58	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6020	Sediment	Cadmium	6.28	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Calcium	15900	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6020	Sediment	Chromium	13.5	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Cobalt	4.8	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Copper	45	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Iron	18700	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6020	Sediment	Lead	399	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Magnesium	11500	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Manganese	258	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA7471A	Sediment	Mercury	0.735	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Nickel	11.6	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Potassium	1160	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Silver	0.449	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Sodium	212	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Thallium	0.531	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6020	Sediment	Vanadium	21.1	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRB	SD-SRB	2010-04-27	EPA6010B	Sediment	Zinc	880	TRUE	mg/kg	50.58077006	40.56786406	679.5300293	423863	5393438	OU 1 South	-3.7094	-3.1792	-0.8832	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Aluminum	10500	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Antimony	0.788	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6020	Sediment	Arsenic	6.51	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Barium	278	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Beryllium	0.43	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6020	Sediment	Cadmium	4.88	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Calcium	9140	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6020	Sediment	Chromium	12.5	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Cobalt	4.3	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Copper	31.3	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Iron	15700	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6020	Sediment	Lead	308	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Magnesium	6980	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Manganese	197	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA7471A	Sediment	Mercury	0.764	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Nickel	10.2	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Potassium	1060	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Selenium	0.13	FALSE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Silver	0.318	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Sodium	177	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Thallium	0.494	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6020	Sediment	Vanadium	18.5	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRC	SD-SRC	2010-04-27	EPA6010B	Sediment	Zinc	601	TRUE	mg/kg	60.65557237	30.77155825	718.7399902	423841	5393398	OU 1 South	-3.3563	-3.1476	-0.2402	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Aluminum	14500	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Antimony	0.793	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6020	Sediment	Arsenic	6.39	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Barium	228	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Beryllium	0.55	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6020	Sediment	Cadmium	5.05	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Calcium	6710	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6020	Sediment	Chromium	12.9	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Cobalt	4.8	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Copper	32.3	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Iron	16200	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6020	Sediment	Lead	295	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Magnesium	5510	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Manganese	221	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA7471A	Sediment	Mercury	0.554	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Nickel	10.4	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Potassium	1170	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Selenium	0.19	FALSE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Silver	0.3	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Sodium	202	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Thallium	0.528	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6020	Sediment	Vanadium	18.5	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRD	SD-SRD	2010-04-27	EPA6010B	Sediment	Zinc	574	TRUE	mg/kg	49.87077535	35.22862823	637.789978	423864	5393532	OU 1 South	-2.8789	-2.9634	0.4998	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Aluminum	11300	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Antimony	0.862	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6020	Sediment	Arsenic	6.86	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Barium	216	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Beryllium	0.49	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6020	Sediment	Cadmium	6.22	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Calcium	6430	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6020	Sediment	Chromium	13.7	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Cobalt	4.5	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Copper	30.5	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6020	Sediment	Lead	311	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Magnesium	5620	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Manganese	195	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA7471A	Sediment	Mercury	0.567	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Nickel	10.7	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Potassium	1230	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Selenium	0.1	FALSE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Silver	0.308	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Sodium	167	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Thallium	0.544	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6020	Sediment	Vanadium	19.1	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SRE	SD-SRE	2010-04-27	EPA6010B	Sediment	Zinc	573	TRUE	mg/kg	59.12036545	32.44449166	674.710022	423853	5393467	OU 1 South	-3.0008	-3.2602	0.4243	2
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Aluminum	6750	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Antimony	0.205	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6020	Sediment	Arsenic	5.54	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Barium	54.2	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6020	Sediment	Cadmium	0.112	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Calcium	13900	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6020	Sediment	Chromium	7.66	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Cobalt	3.8	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Copper	10.9	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Iron	12900	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6020	Sediment	Lead	5.68	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Magnesium	6060	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Manganese	241	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Nickel	7.77	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Potassium	1270	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Silver	0.036	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Sodium	128	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Thallium	0.094	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6020	Sediment	Vanadium	12	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWA	SD-SWA	2011-05-01	EPA6010B	Sediment	Zinc	35.3	TRUE	mg/kg	86.78538905	5.393099261	1396.640015	364560	5312276	OU 2 Lower Laucustrine CSM Unit	3.1079	0.5294	-2.149	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Aluminum	6630	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Antimony	0.183	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6020	Sediment	Arsenic	4.73	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Barium	56	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6020	Sediment	Cadmium	0.097	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Calcium	8260	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6020	Sediment	Chromium	8.19	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Cobalt	4.56	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Copper	10.8	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Iron	14200	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6020	Sediment	Lead	5.59	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Magnesium	5580	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Manganese	271	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Nickel	8.73	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Potassium	1400	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Silver	0.043	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Sodium	97	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Thallium	0.089	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6020	Sediment	Vanadium	11.6	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWB	SD-SWB	2011-05-01	EPA6010B	Sediment	Zinc	40.3	TRUE	mg/kg	91.04839933	5.451878825	1517.339966	364681	5312273	OU 2 Lower Laucustrine CSM Unit	3.2633	0.6295	-1.4571	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Aluminum	6700	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Antimony	0.179	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6020	Sediment	Arsenic	4.94	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Barium	54.9	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6020	Sediment	Cadmium	0.121	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Calcium	7810	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6020	Sediment	Chromium	8.53	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Cobalt	4.1	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Copper	9.8	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Iron	14100	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6020	Sediment	Lead	5.74	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Magnesium	5580	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Manganese	246	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Nickel	7.96	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Potassium	1340	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Silver	0.039	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Sodium	98	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Thallium	0.115	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6020	Sediment	Vanadium	12.9	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWC	SD-SWC	2011-05-01	EPA6010B	Sediment	Zinc	40.1	TRUE	mg/kg	76.06166087	4.216807558	1517.959961	364682	5312265	OU 2 Lower Laucustrine CSM Unit	3.3863	0.6717	-1.509	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Aluminum	6080	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Antimony	0.191	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6020	Sediment	Arsenic	4.51	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Barium	51.1	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6020	Sediment	Cadmium	0.101	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Calcium	9620	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6020	Sediment	Chromium	7.4	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Cobalt	3.91	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Copper	10.1	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Iron	13200	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6020	Sediment	Lead	5.6	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Magnesium	5500	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Manganese	269	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Nickel	7.64	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Potassium	1190	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Silver	0.052	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Sodium	92	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Thallium	0.084	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6020	Sediment	Vanadium	10.7	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWD	SD-SWD	2011-05-01	EPA6010B	Sediment	Zinc	37.4	TRUE	mg/kg	83.99318432	4.791019344	1471.369995	364636	5312250	OU 2 Lower Laucustrine CSM Unit	3.2399	0.7984	-1.7258	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Aluminum	7230	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Antimony	0.15	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6020	Sediment	Arsenic	5.18	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Barium	56.8	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Beryllium	0.26	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6020	Sediment	Cadmium	0.141	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Calcium	7260	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6020	Sediment	Chromium	8.72	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Cobalt	4.3	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Copper	10.5	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6020	Sediment	Lead	7.01	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Magnesium	5760	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Manganese	250	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Nickel	8.39	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Potassium	1450	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Silver	0.05	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Sodium	129	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Thallium	0.124	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6020	Sediment	Vanadium	13.2	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-SWE	SD-SWE	2011-05-01	EPA6010B	Sediment	Zinc	43.8	TRUE	mg/kg	76.70229008	7.633587786	1499.98999	364662	5312300	OU 2 Lower Laucustrine CSM Unit	3.1843	0.5175	-1.3178	3
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Aluminum	8790	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Antimony	0.274	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6020	Sediment	Arsenic	3.02	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Barium	102	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Beryllium	0.31	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6020	Sediment	Cadmium	1.37	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Calcium	7330	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6020	Sediment	Chromium	17.4	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Cobalt	5.65	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Copper	19.5	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Iron	14900	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6020	Sediment	Lead	63.9	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Magnesium	5200	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Manganese	262	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA7471A	Sediment	Mercury	0.126	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Nickel	13.9	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Potassium	1650	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Silver	0.197	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Sodium	134	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Thallium	0.343	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6020	Sediment	Vanadium	21.6	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBA	SD-WBA	2011-04-23	EPA6010B	Sediment	Zinc	170	TRUE	mg/kg	46.78433759	48.48853723	-2465.280029	420595	5386801	OU 2 Transitional CSM Unit	-0.0808	-1.8247	0.5258	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Aluminum	7940	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Antimony	0.336	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6020	Sediment	Arsenic	3.91	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Barium	120	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6020	Sediment	Cadmium	2.14	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Calcium	4630	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6020	Sediment	Chromium	18.8	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Cobalt	5.39	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Copper	18.9	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Iron	14700	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6020	Sediment	Lead	127	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Magnesium	5220	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Manganese	262	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA7471A	Sediment	Mercury	0.22	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Nickel	13.7	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Potassium	1670	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Selenium	0.3	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Silver	0.211	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Sodium	126	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Thallium	0.45	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6020	Sediment	Vanadium	23.5	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBB	SD-WBB	2011-04-23	EPA6010B	Sediment	Zinc	252	TRUE	mg/kg	51.99558765	43.03048536	-2554.73999	420664	5386744	OU 2 Transitional CSM Unit	-0.8408	-2.3299	0.8697	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Aluminum	7590	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Antimony	0.153	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6020	Sediment	Arsenic	2.54	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Barium	86.1	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Beryllium	0.27	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6020	Sediment	Cadmium	0.732	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Calcium	6980	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6020	Sediment	Chromium	15.1	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Cobalt	5.14	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Copper	14.8	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Iron	13800	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6020	Sediment	Lead	31.4	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Magnesium	4730	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Manganese	252	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA7471A	Sediment	Mercury	0.072	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Nickel	12.9	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Potassium	1550	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Silver	0.124	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Sodium	130	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Thallium	0.236	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6020	Sediment	Vanadium	19.3	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBC	SD-WBC	2011-04-23	EPA6010B	Sediment	Zinc	118	TRUE	mg/kg	57.81645249	41.39431347	-2510.810059	420639	5386784	OU 2 Transitional CSM Unit	0.7069	-1.2997	0.2877	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Aluminum	6300	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Antimony	0.22	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6020	Sediment	Arsenic	2.49	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Barium	74.8	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Beryllium	0.22	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6020	Sediment	Cadmium	0.916	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Calcium	6360	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6020	Sediment	Chromium	12.4	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Cobalt	4.31	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Copper	13.7	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Iron	12000	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6020	Sediment	Lead	46.7	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Magnesium	3750	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Manganese	193	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA7471A	Sediment	Mercury	0.101	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Nickel	10.5	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Potassium	1310	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Silver	0.127	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Sodium	97	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Thallium	0.233	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6020	Sediment	Vanadium	16.4	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBD	SD-WBD	2011-04-23	EPA6010B	Sediment	Zinc	128	TRUE	mg/kg	65.00668793	31.8859965	-2513.399902	420640	5386781	OU 2 Transitional CSM Unit	-0.0302	-1.7717	0.3158	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Aluminum	7150	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Antimony	0.258	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6020	Sediment	Arsenic	2.98	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Barium	91.7	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Beryllium	0.25	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6020	Sediment	Cadmium	1.7	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Calcium	3430	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6020	Sediment	Chromium	15.5	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Cobalt	5	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Copper	17.9	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Iron	13300	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6020	Sediment	Lead	81.7	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Magnesium	4380	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Manganese	231	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA7471A	Sediment	Mercury	0.198	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Nickel	12.6	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Potassium	1460	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Selenium	0.2	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Silver	0.18	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Sodium	115	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Thallium	0.33	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6020	Sediment	Vanadium	19.5	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WBE	SD-WBE	2011-04-23	EPA6010B	Sediment	Zinc	182	TRUE	mg/kg	53.62092321	43.78451599	-2534.77002	420654	5386764	OU 2 Transitional CSM Unit	-0.5205	-2.2125	1.1473	2
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Aluminum	12300	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Antimony	0.252	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6020	Sediment	Arsenic	6.01	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Barium	113	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6020	Sediment	Cadmium	0.802	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Calcium	7280	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6020	Sediment	Chromium	21	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Cobalt	8.08	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Copper	20.9	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Iron	21500	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6020	Sediment	Lead	29.8	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Magnesium	6020	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Manganese	267	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA7471A	Sediment	Mercury	0.052	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Nickel	20.3	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Potassium	1930	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Silver	0.126	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Sodium	155	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Thallium	0.322	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6020	Sediment	Vanadium	23	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCA	SD-WCA	2011-04-28	EPA6010B	Sediment	Zinc	131	TRUE	mg/kg	36.28577187	59.27045546	1016	403508	5322669	OU 2 Middle Laucustrine CSM Unit	1.4084	-1.0662	0.1233	3
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Aluminum	14700	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Antimony	0.238	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6020	Sediment	Arsenic	4.62	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Barium	136	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Beryllium	0.46	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6020	Sediment	Cadmium	1	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Calcium	3230	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6020	Sediment	Chromium	19.4	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Cobalt	8.35	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Copper	21.9	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Iron	21400	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6020	Sediment	Lead	42.1	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Magnesium	5710	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Manganese	286	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA7471A	Sediment	Mercury	0.094	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Nickel	20.5	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Potassium	2340	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Silver	0.137	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Sodium	162	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Thallium	0.352	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6020	Sediment	Vanadium	23.1	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCB	SD-WCB	2011-04-28	EPA6010B	Sediment	Zinc	178	TRUE	mg/kg	31.46456693	62.04724409	1007.400024	403453	5322660	OU 2 Middle Laucustrine CSM Unit	1.0282	-1.3919	1.1964	2
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Aluminum	14300	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Antimony	0.239	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6020	Sediment	Arsenic	5.92	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Barium	126	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Beryllium	0.43	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6020	Sediment	Cadmium	0.805	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Calcium	5440	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6020	Sediment	Chromium	20.6	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Cobalt	8.54	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Copper	20.6	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Iron	20500	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6020	Sediment	Lead	39	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Magnesium	5500	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Manganese	282	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA7471A	Sediment	Mercury	0.06	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Nickel	19.6	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Potassium	2170	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Silver	0.129	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Sodium	165	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Thallium	0.301	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6020	Sediment	Vanadium	23.9	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCC	SD-WCC	2011-04-28	EPA6010B	Sediment	Zinc	137	TRUE	mg/kg	42.55784866	53.88784657	1009.190002	403497	5322660	OU 2 Middle Laucustrine CSM Unit	1.3322	-1.1347	0.5346	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Aluminum	11900	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Antimony	0.262	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6020	Sediment	Arsenic	6.72	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Barium	110	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Beryllium	0.39	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6020	Sediment	Cadmium	1.06	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Calcium	5570	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6020	Sediment	Chromium	21.6	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Cobalt	8.92	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Copper	21.2	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Iron	21100	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6020	Sediment	Lead	37.6	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Magnesium	5890	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Manganese	300	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA7471A	Sediment	Mercury	0.057	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Nickel	20.9	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Potassium	1850	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Silver	0.122	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Sodium	144	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Thallium	0.338	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6020	Sediment	Vanadium	24.2	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCD	SD-WCD	2011-04-28	EPA6010B	Sediment	Zinc	142	TRUE	mg/kg	44.09456843	52.11454193	1038.119995	403500	5322690	OU 2 Middle Laucustrine CSM Unit	1.2605	-1.2119	0.4636	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Aluminum	11500	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Antimony	0.257	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6020	Sediment	Arsenic	5.52	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Barium	107	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6020	Sediment	Cadmium	0.748	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Calcium	6170	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6020	Sediment	Chromium	21.5	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Cobalt	8.32	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Copper	20.3	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Iron	19700	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6020	Sediment	Lead	29	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Magnesium	5530	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Manganese	282	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA7471A	Sediment	Mercury	0.062	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Nickel	19.9	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Potassium	1710	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Silver	0.129	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Sodium	141	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Thallium	0.31	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6020	Sediment	Vanadium	23.7	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WCE	SD-WCE	2011-04-28	EPA6010B	Sediment	Zinc	123	TRUE	mg/kg	40.41658116	54.40180587	1032.839966	403451	5322686	OU 2 Middle Laucustrine CSM Unit	1.4196	-1.0748	0.3525	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Aluminum	8370	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Antimony	0.1495	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6020	Sediment	Arsenic	4.53	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Barium	50.1	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Beryllium	0.315	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6020	Sediment	Cadmium	0.2035	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Calcium	1855	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6020	Sediment	Chromium	10.365	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Cobalt	4.12	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Copper	8.45	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Iron	15250	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6020	Sediment	Lead	7.57	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Magnesium	5530	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Manganese	222	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA7471A	Sediment	Mercury	0.005	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Nickel	9.725	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Potassium	1500	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Silver	0.0365	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Sodium	107.5	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Thallium	0.1555	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6020	Sediment	Vanadium	12.55	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSA	SD-WSA-1	2011-05-03	EPA6010B	Sediment	Zinc	50.25	TRUE	mg/kg	90.7017632	4.420555583	670.2600098	385245	5304980	OU 2 Lower Laucustrine CSM Unit	3.3816	-0.128	0.2517	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Aluminum	8820	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Antimony	0.224	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6020	Sediment	Arsenic	5.94	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Barium	49.6	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Beryllium	0.34	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6020	Sediment	Cadmium	0.149	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Calcium	2090	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6020	Sediment	Chromium	9.02	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Cobalt	4.01	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Copper	10.1	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Iron	15400	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6020	Sediment	Lead	6.52	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Magnesium	5580	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Manganese	243	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Nickel	9.37	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Potassium	1550	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Silver	0.037	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Sodium	104	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Thallium	0.127	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6020	Sediment	Vanadium	12.3	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSB	SD-WSB	2011-05-03	EPA6010B	Sediment	Zinc	40.3	TRUE	mg/kg	87.81102045	5.882945502	677.5700073	385254	5304961	OU 2 Lower Laucustrine CSM Unit	3.6175	0.0802	-0.128	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Aluminum	8590	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Antimony	0.182	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6020	Sediment	Arsenic	4.63	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Barium	52.1	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Beryllium	0.38	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6020	Sediment	Cadmium	0.164	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Calcium	2490	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6020	Sediment	Chromium	7.93	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Cobalt	4.71	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Copper	11.5	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Iron	17000	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6020	Sediment	Lead	6.66	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Magnesium	5890	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Manganese	245	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA7471A	Sediment	Mercury	0.004	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Nickel	10.5	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Potassium	1610	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Silver	0.042	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Sodium	110	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Thallium	0.142	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6020	Sediment	Vanadium	9.89	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSC	SD-WSC	2011-05-03	EPA6010B	Sediment	Zinc	54.6	TRUE	mg/kg	89.51120163	2.820773931	669.4899902	385244	5304983	OU 2 Lower Laucustrine CSM Unit	3.3194	0.2424	-0.0639	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Aluminum	7510	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Antimony	0.124	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6020	Sediment	Arsenic	3.21	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Barium	50.6	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Beryllium	0.29	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6020	Sediment	Cadmium	0.14	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Calcium	2090	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6020	Sediment	Chromium	6.93	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Cobalt	3.61	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Copper	8.1	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Iron	13200	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6020	Sediment	Lead	5.84	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Magnesium	4860	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Manganese	193	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA7471A	Sediment	Mercury	0.002	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Nickel	7.7	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Potassium	1410	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Silver	0.046	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Sodium	92	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Thallium	0.105	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6020	Sediment	Vanadium	8.65	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSD	SD-WSD	2011-05-03	EPA6010B	Sediment	Zinc	44.1	TRUE	mg/kg	90.70805335	4.839033196	672.460022	385246	5304996	OU 2 Lower Laucustrine CSM Unit	3.3796	0.3815	-0.1227	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Aluminum	7960	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Antimony	0.179	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6020	Sediment	Arsenic	4.1	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Barium	54.8	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Beryllium	0.37	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6020	Sediment	Cadmium	0.17	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Calcium	1860	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6020	Sediment	Chromium	8.44	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Cobalt	4.01	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Copper	11.3	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Iron	14400	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6020	Sediment	Lead	6.6	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Magnesium	5220	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Manganese	214	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA7471A	Sediment	Mercury	0.003	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Nickel	8.98	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Potassium	1400	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Selenium	0.2	FALSE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Silver	0.033	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Sodium	112	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Thallium	0.142	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6020	Sediment	Vanadium	9.72	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2009–2011 Beach Sediment Study	SD-WSE	SD-WSE	2011-05-03	EPA6010B	Sediment	Zinc	49	TRUE	mg/kg	87.56403817	3.776996484	663.0900269	385236	5305003	OU 2 Lower Laucustrine CSM Unit	3.2416	0.2716	0.1584	3
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Aluminum	18850	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Antimony	90.95	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6020	Sediment	Arsenic	20.5	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Barium	1930	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Beryllium	0.95	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6020	Sediment	Cadmium	1.065	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Calcium	68150	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6020	Sediment	Chromium	135.5	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Cobalt	70.3	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Copper	2275	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Iron	194500	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6020	Sediment	Lead	257	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Magnesium	7300	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Manganese	3635	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA7471A	Sediment	Mercury	0.04	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Nickel	13.8	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Potassium	3415	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Selenium	1.85	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Silver	5.12	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Sodium	2265	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Thallium	0.0665	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Vanadium	40.05	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	DE	DE definitive rep 1	2010-07-17	EPA6010B	Sediment	Zinc	14650	TRUE	mg/kg	98.15911239	0.815960993	108.0599976	447084	5421110	OU 1 North	-2.4752	5.4354	0.2672	1
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Aluminum	2665	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Antimony	0.059	FALSE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6020	Sediment	Arsenic	0.855	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Barium	40.7	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Beryllium	0.11	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6020	Sediment	Cadmium	0.107	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Calcium	1475	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6020	Sediment	Chromium	5.16	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Cobalt	1.9	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Copper	4.7	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Iron	6420	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6020	Sediment	Lead	5.535	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Magnesium	1865	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Manganese	86.55	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA7471A	Sediment	Mercury	0.002	FALSE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Nickel	7.125	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Potassium	494	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Selenium	0.1	FALSE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Silver	0.0325	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Sodium	55.5	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Thallium	0.039	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Vanadium	10.55	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2010 White Sturgeon Sediment Toxicity Study	GE	GE definitive rep 1	2010-07-15	EPA6010B	Sediment	Zinc	30.7	TRUE	mg/kg	86.10947814	1.321867074		448732	5450198	LCR above Trail	2.4409	0.0221	0.2484	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Aluminum	2055	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Antimony	0.142	FALSE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6020	Sediment	Arsenic	0.815	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Barium	29.8	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Beryllium	0.095	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6020	Sediment	Cadmium	0.1335	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Calcium	1240	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6020	Sediment	Chromium	4.895	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Cobalt	1.2	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Copper	3.95	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Iron	4505	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6020	Sediment	Lead	8.05	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Magnesium	1023	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Manganese	47.3	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA7471A	Sediment	Mercury	0.0025	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Nickel	5.435	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Potassium	384.5	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Selenium	0.1	FALSE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Silver	0.0135	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Sodium	46	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Thallium	0.0315	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Vanadium	8.15	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LALL	LALL DEF rep 1	2010-07-16	EPA6010B	Sediment	Zinc	22.05	TRUE	mg/kg	74.89160028	1.781452724		440480	5465803	LCR above Trail	1.7874	-0.6456	0.4682	3
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Aluminum	22900	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Antimony	115.5	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6020	Sediment	Arsenic	23.7	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Barium	2435	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Beryllium	1.205	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6020	Sediment	Cadmium	0.979	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Calcium	83500	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6020	Sediment	Chromium	160.5	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Cobalt	74.05	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Copper	3110	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Iron	245500	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6020	Sediment	Lead	414.5	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Magnesium	7430	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Manganese	4625	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA7471A	Sediment	Mercury	0.0215	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Nickel	16.4	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Potassium	4135	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Selenium	2.1	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Silver	7.29	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Sodium	2770	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Thallium	0.0885	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Vanadium	47.45	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LD-01	LD-01 DEF rep 1	2010-07-16	EPA6010B	Sediment	Zinc	18700	TRUE	mg/kg	98.92904953	1.031285636	-192.3000031	435417	5412545	OU 1 South	-2.471	5.9066	0.3038	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Aluminum	19800	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Antimony	34.6	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6020	Sediment	Arsenic	13.35	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Barium	1240	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Beryllium	0.79	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6020	Sediment	Cadmium	1.41	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Calcium	55850	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6020	Sediment	Chromium	82.05	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Cobalt	30.6	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Copper	1500	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Iron	185500	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6020	Sediment	Lead	441	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Magnesium	7115	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Manganese	3240	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA7471A	Sediment	Mercury	0.025	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Nickel	10.145	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Potassium	3370	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Selenium	2	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Silver	2.3	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Sodium	1355	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Thallium	0.091	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Vanadium	39.6	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	LMF-02	LMF-02 DEF rep 1	2010-07-16	EPA6010B	Sediment	Zinc	14900	TRUE	mg/kg	96.97850378	2.743398306	-32.9000015	418470	5390166	OU 2 Transitional CSM Unit	-2.9317	4.5796	0.3492	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Aluminum	8345	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Antimony	40.05	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6020	Sediment	Arsenic	10.4	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Barium	630.5	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Beryllium	0.345	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6020	Sediment	Cadmium	1.69	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Calcium	28150	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6020	Sediment	Chromium	33.25	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Cobalt	18.35	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Copper	711.5	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Iron	69800	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6020	Sediment	Lead	179.5	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Magnesium	7095	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Manganese	1240	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA7471A	Sediment	Mercury	0.1115	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Nickel	15.75	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Potassium	1450	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Selenium	0.35	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Silver	3.285	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Sodium	542.5	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Thallium	0.124	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Vanadium	27.65	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2010 White Sturgeon Sediment Toxicity Study	NP-03	NP-03 DEF rep 1	2010-07-16	EPA6010B	Sediment	Zinc	4995	TRUE	mg/kg	96.60889224	2.587289626	63.3499985	443302	5419361	OU 1 North	-3.2886	2.1797	-0.2894	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Aluminum	5400	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Antimony	11	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Arsenic	7.1	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Barium	130	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Beryllium	0.3	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Cadmium	1.7	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Calcium	3400	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Chromium	19	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Cobalt	5.4	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Copper	120	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Iron	18000	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Lead	170	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Magnesium	3000	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Manganese	190	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Mercury	0.19	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Nickel	10	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Potassium	910	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Selenium	0.6	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Silver	0.6	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Sodium	140	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Thallium	0.4	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Vanadium	27	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-1_2012-10-14	2012-dep-exp-1	2012-10-14	Unk	Sediment	Zinc	650	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.2857	-1.4387	1.2322	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Aluminum	7800	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Antimony	120	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Arsenic	14	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Barium	440	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Beryllium	0.3	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Cadmium	0.5	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Calcium	18000	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Chromium	39	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Cobalt	17	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Copper	670	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Iron	54000	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Lead	100	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Magnesium	3600	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Manganese	1100	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Mercury	0.12	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Nickel	10	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Potassium	1300	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Selenium	1	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Silver	5.7	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Sodium	540	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Vanadium	26	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-2_2012-10-14	2012-dep-exp-2	2012-10-14	Unk	Sediment	Zinc	4200	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.4921	2.9201	0.0539	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Aluminum	6400	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Antimony	63	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Arsenic	11	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Barium	240	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Beryllium	0.3	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Cadmium	1.1	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Calcium	8700	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Chromium	31	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Cobalt	9.2	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Copper	370	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Iron	35000	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Lead	160	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Magnesium	3200	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Manganese	560	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Mercury	0.21	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Nickel	14	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Potassium	1100	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Selenium	0.8	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Silver	2.6	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Sodium	260	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Thallium	0.2	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Vanadium	38	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-3_2012-10-14	2012-dep-exp-3	2012-10-14	Unk	Sediment	Zinc	2200	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.6159	0.5046	0.7762	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Aluminum	7500	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Antimony	25	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Arsenic	7	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Barium	140	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Cadmium	0.5	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Calcium	5600	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Chromium	24	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Cobalt	9.1	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Copper	180	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Iron	25000	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Lead	62	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Magnesium	4600	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Manganese	430	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Mercury	0.08	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Nickel	12	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Potassium	980	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Selenium	0.01	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Silver	0.8	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Sodium	220	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Thallium	0.1	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Vanadium	41	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-4_2012-10-14	2012-dep-exp-4	2012-10-14	Unk	Sediment	Zinc	930	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.8079	0.463	0.6394	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Aluminum	6000	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Antimony	39	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Arsenic	9.6	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Barium	240	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Cadmium	1.1	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Calcium	9400	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Chromium	30	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Cobalt	9.3	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Copper	320	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Iron	36000	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Lead	130	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Magnesium	2900	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Manganese	550	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Mercury	0.16	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Nickel	10	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Potassium	960	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Selenium	0.8	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Silver	2.1	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Sodium	280	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Thallium	0.2	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Vanadium	30	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-5_2012-10-14	2012-dep-exp-5	2012-10-14	Unk	Sediment	Zinc	2400	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.732	1.0819	0.556	1
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Aluminum	5600	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Antimony	29	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Arsenic	5.9	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Barium	210	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Cadmium	0.71	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Calcium	7600	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Chromium	25	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Cobalt	9	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Copper	250	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Iron	26000	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Lead	83	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Magnesium	3200	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Manganese	450	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Mercury	0.07	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Nickel	11	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Potassium	990	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Selenium	0.6	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Silver	1.4	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Sodium	240	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Thallium	0.2	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Vanadium	29	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-6_2012-10-14	2012-dep-exp-6	2012-10-14	Unk	Sediment	Zinc	1400	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.9073	1.052	0.5974	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Aluminum	7400	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Antimony	10	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Arsenic	4.9	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Barium	180	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Cadmium	1.2	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Calcium	13000	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Chromium	34	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Cobalt	8	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Copper	100	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Iron	26000	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Lead	73	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Magnesium	7700	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Manganese	390	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Mercury	0.05	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Nickel	18	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Potassium	1300	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Selenium	0.01	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Silver	0.9	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Sodium	260	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Thallium	0.2	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Vanadium	49	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-exp-7_2012-10-14	2012-dep-exp-7	2012-10-14	Unk	Sediment	Zinc	780	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.7212	-0.1671	-0.0656	2
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Aluminum	4000	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Antimony	0.05	FALSE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Arsenic	0.8	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Barium	38	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Cadmium	0.23	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Calcium	2300	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Chromium	18	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Cobalt	3	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Copper	5.8	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Iron	13000	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Lead	7.8	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Magnesium	2600	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Manganese	120	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Mercury	0.001	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Nickel	9.1	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Potassium	790	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Selenium	0.01	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Silver	0.1	FALSE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Sodium	83	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Vanadium	31	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-1_2012-10-14	2012-dep-ref-1	2012-10-14	Unk	Sediment	Zinc	71	TRUE	mg/kg				452800	5462839	LCR above Trail	3.3787	0.3485	1.3588	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Aluminum	4100	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Antimony	0.2	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Arsenic	1.1	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Barium	45	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Cadmium	0.3	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Calcium	2400	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Chromium	15	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Cobalt	3	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Copper	6.3	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Iron	11000	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Lead	9.9	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Magnesium	2700	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Manganese	130	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Mercury	0.001	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Nickel	9.7	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Potassium	810	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Selenium	0.01	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Silver	0.1	FALSE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Sodium	93	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Vanadium	24	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-2_2012-10-14	2012-dep-ref-2	2012-10-14	Unk	Sediment	Zinc	70	TRUE	mg/kg				448802	5450137	LCR above Trail	2.9195	0.1882	1.0019	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Aluminum	3000	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Antimony	0.05	FALSE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Arsenic	0.6	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Barium	23	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Beryllium	0.1	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Cadmium	0.09	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Calcium	1700	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Chromium	15	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Cobalt	2.2	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Copper	4	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Iron	11000	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Lead	4.9	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Magnesium	2100	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Manganese	150	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Mercury	0.001	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Nickel	6.1	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Potassium	420	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Selenium	0.01	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Silver	0.1	FALSE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Sodium	97	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Vanadium	27	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2012–2013 AREMP Teck Trail Operations	2012-dep-ref-3_2012-10-14	2012-dep-ref-3	2012-10-14	Unk	Sediment	Zinc	38	TRUE	mg/kg				447508	5446077	LCR above Trail	3.8898	1.1493	1.2728	3
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Aluminum	8640	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Antimony	10.6	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6020A	Sediment	Arsenic	8.38	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Barium	518	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6020A	Sediment	Beryllium	0.387	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6020A	Sediment	Cadmium	3.74	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Calcium	33300	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6020A	Sediment	Chromium	34.6	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6020A	Sediment	Cobalt	13.6	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Copper	396	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Iron	56900	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Lead	226	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Magnesium	13400	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Manganese	949	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA7471B	Sediment	Mercury	0.159	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6020A	Sediment	Nickel	13.2	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Potassium	1450	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Selenium	1.2	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Silver	1.58	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Sodium	388	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Thallium	0.229	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6020A	Sediment	Vanadium	26.7	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-B5	SE-1-B5	2013-10-18	EPA6010C	Sediment	Zinc	4300	TRUE	mg/kg	79.79191677	18.69747899	227.3500061	446362	5421170	OU 1 North	-3.5306	0.714	-0.5902	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Aluminum	10200	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Antimony	38.4	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6020A	Sediment	Arsenic	11.1	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Barium	744	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6020A	Sediment	Beryllium	0.377	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6020A	Sediment	Cadmium	0.727	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Calcium	26500	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6020A	Sediment	Chromium	50.8	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6020A	Sediment	Cobalt	19.6	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Copper	913	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Iron	83300	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Lead	151	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Magnesium	3880	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Manganese	1390	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA7471B	Sediment	Mercury	0.051	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6020A	Sediment	Nickel	9.91	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Potassium	1680	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Selenium	1.2	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Silver	2.36	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Sodium	675	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Thallium	0.098	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6020A	Sediment	Vanadium	21.4	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R1	SE-1-R1	2013-10-21	EPA6010C	Sediment	Zinc	6490	TRUE	mg/kg	99.18639825	0.813601752	146.7400055	453443	5427291	OU 1 North	-2.8723	3.8236	0.1153	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Aluminum	15650	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Antimony	44.75	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6020A	Sediment	Arsenic	15.6	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Barium	1385	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6020A	Sediment	Beryllium	0.653	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6020A	Sediment	Cadmium	0.859	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Calcium	47350	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6020A	Sediment	Chromium	98.8	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6020A	Sediment	Cobalt	51.4	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Copper	1620	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Iron	160000	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Lead	232	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Magnesium	5210	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Manganese	3090	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA7471B	Sediment	Mercury	0.0165	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6020A	Sediment	Nickel	13.15	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Potassium	2830	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Selenium	2.05	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Silver	3.885	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Sodium	1560	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Thallium	0.052	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6020A	Sediment	Vanadium	34.15	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R2	SE-1-R2	2013-10-21	EPA6010C	Sediment	Zinc	13550	TRUE	mg/kg	99.76628233	0.233717669	161.0500031	452607	5424703	OU 1 North	-2.2996	5.5092	0.4056	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Aluminum	11000	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Antimony	41.1	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6020A	Sediment	Arsenic	10.8	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Barium	823	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6020A	Sediment	Beryllium	0.449	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6020A	Sediment	Cadmium	0.492	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Calcium	30600	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6020A	Sediment	Chromium	63.7	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6020A	Sediment	Cobalt	31.4	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Copper	979	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Iron	104000	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Lead	190	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Magnesium	3980	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Manganese	1740	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA7471B	Sediment	Mercury	0.017	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6020A	Sediment	Nickel	10.1	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Potassium	1940	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Selenium	1.4	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Silver	2.75	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Sodium	917	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Thallium	0.044	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6020A	Sediment	Vanadium	24.1	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R5	SE-1-R5	2013-10-22	EPA6010C	Sediment	Zinc	8530	TRUE	mg/kg	98.16795405	1.83204595	205.75	453606	5427596	OU 1 North	-2.2795	4.9291	0.3596	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Aluminum	8420	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Antimony	26.6	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6020A	Sediment	Arsenic	9.51	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Barium	569	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6020A	Sediment	Beryllium	0.365	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6020A	Sediment	Cadmium	1.07	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Calcium	21400	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6020A	Sediment	Chromium	41.3	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6020A	Sediment	Cobalt	20.3	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Copper	653	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Iron	61100	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Lead	112	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Magnesium	4490	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Manganese	1170	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA7471B	Sediment	Mercury	0.058	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6020A	Sediment	Nickel	9.94	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Potassium	1420	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Silver	1.39	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Sodium	608	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Thallium	0.114	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6020A	Sediment	Vanadium	20.6	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1-R8	SE-1-R8	2013-10-21	EPA6010C	Sediment	Zinc	4640	TRUE	mg/kg	98.17171717	1.444444444	174.5099945	446280	5421175	OU 1 North	-2.7275	3.149	0.1916	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Aluminum	11600	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Antimony	46.7	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6020A	Sediment	Arsenic	16.6	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Barium	1040	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6020A	Sediment	Beryllium	0.479	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6020A	Sediment	Cadmium	3.67	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Calcium	44700	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6020A	Sediment	Chromium	58.3	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6020A	Sediment	Cobalt	29	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Copper	1110	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Iron	116000	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Lead	566	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Magnesium	10300	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Manganese	2460	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA7471B	Sediment	Mercury	0.071	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6020A	Sediment	Nickel	14.1	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Potassium	2340	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Selenium	1.3	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Silver	3.55	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Sodium	1120	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Thallium	0.145	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6020A	Sediment	Vanadium	28.9	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C1	SE-1B-C1	2013-10-22	EPA6010C	Sediment	Zinc	10000	TRUE	mg/kg	87.32307692	12.19487179	-200.5099945	442912	5418855	OU 1 North	-3.8508	3.0358	-0.1715	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Aluminum	9000	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Antimony	11.3	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6020A	Sediment	Arsenic	6.69	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Barium	464	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6020A	Sediment	Beryllium	0.346	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6020A	Sediment	Cadmium	3	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Calcium	31900	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6020A	Sediment	Chromium	27.7	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6020A	Sediment	Cobalt	11.2	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Copper	388	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Iron	56000	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Lead	372	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Magnesium	12300	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Manganese	1220	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA7471B	Sediment	Mercury	0.122	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6020A	Sediment	Nickel	10.8	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Potassium	1680	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Selenium	1	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Silver	1.33	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Sodium	586	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Thallium	0.153	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6020A	Sediment	Vanadium	25.6	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-C3	SE-1B-C3	2013-10-22	EPA6010C	Sediment	Zinc	4750	TRUE	mg/kg	90.90909091	8.990011099	-219.75	443176	5418972	OU 1 North	-3.7543	1.0811	-0.3915	1
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Aluminum	5890	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Antimony	6.09	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6020A	Sediment	Arsenic	7.69	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Barium	496	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6020A	Sediment	Beryllium	0.285	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6020A	Sediment	Cadmium	4.86	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Calcium	35100	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6020A	Sediment	Chromium	18.7	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6020A	Sediment	Cobalt	7.48	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Copper	167	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Iron	28500	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Lead	219	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Magnesium	18000	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Manganese	499	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA7471B	Sediment	Mercury	0.247	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6020A	Sediment	Nickel	14	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Potassium	1040	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Selenium	0.6	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Silver	1.28	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Sodium	186	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Thallium	0.323	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6020A	Sediment	Vanadium	22.5	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R2	SE-1B-R2	2013-10-22	EPA6010C	Sediment	Zinc	1780	TRUE	mg/kg	70.10780791	29.89219209	-183	442818	5418846	OU 1 North	-3.9776	-1.1935	-1.8113	2
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Aluminum	13300	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Antimony	43.1	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6020A	Sediment	Arsenic	16.25	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Barium	867.5	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6020A	Sediment	Beryllium	0.574	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6020A	Sediment	Cadmium	1.23	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Calcium	38750	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6020A	Sediment	Chromium	64.9	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6020A	Sediment	Cobalt	31	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Copper	1210	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Iron	111050	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Lead	908.5	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Magnesium	5870	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Manganese	2570	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA7471B	Sediment	Mercury	0.016	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6020A	Sediment	Nickel	12.35	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Potassium	3075	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Selenium	1.5	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Silver	3.26	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Sodium	1460	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Thallium	0.075	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6020A	Sediment	Vanadium	33.35	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	1B-R3	SE-1B-R3	2013-10-23	EPA6010C	Sediment	Zinc	10230	TRUE	mg/kg	71.37125088	1.95104825	-181.8500061	443090	5418974	OU 1 North	-3.0141	4.1776	0.4288	1
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Aluminum	5950	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Antimony	1.18	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6020A	Sediment	Arsenic	2.55	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Barium	112	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6020A	Sediment	Beryllium	0.248	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6020A	Sediment	Cadmium	0.721	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Calcium	7060	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6020A	Sediment	Chromium	11.5	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6020A	Sediment	Cobalt	4.29	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Copper	30.4	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Iron	14600	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Lead	63.8	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Magnesium	5560	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Manganese	206	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA7471B	Sediment	Mercury	0.02	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6020A	Sediment	Nickel	11.2	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Potassium	913	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Selenium	0.3	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Silver	0.477	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Sodium	106	FALSE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Thallium	0.107	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6020A	Sediment	Vanadium	17.2	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2
2013 Phase 2 Sediment Study	2-B1	SE-2-B1	2013-10-23	EPA6010C	Sediment	Zinc	484	TRUE	mg/kg	87.40469353	11.57540351	-282.7799988	441087	5417286	OU 1 North	-0.7624	-0.8398	-0.0714	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Aluminum	8370	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Antimony	26.6	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6020A	Sediment	Arsenic	8.74	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Barium	558	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6020A	Sediment	Beryllium	0.348	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6020A	Sediment	Cadmium	0.774	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Calcium	20700	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6020A	Sediment	Chromium	39.3	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6020A	Sediment	Cobalt	19.9	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Copper	644	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Iron	62400	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Lead	99.2	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Magnesium	3900	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Manganese	1210	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA7471B	Sediment	Mercury	0.027	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6020A	Sediment	Nickel	9.68	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Potassium	1410	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Silver	1.56	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Sodium	648	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Thallium	0.109	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6020A	Sediment	Vanadium	19.6	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B2	SE-2-B2	2013-10-23	EPA6010C	Sediment	Zinc	4740	TRUE	mg/kg	98.68605817	1.163490471	99.2799988	440369	5416813	OU 1 North	-2.4131	3.7275	0.2005	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Aluminum	14800	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Antimony	52.5	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6020A	Sediment	Arsenic	12.2	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Barium	1220	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6020A	Sediment	Beryllium	0.554	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6020A	Sediment	Cadmium	0.687	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Calcium	40300	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6020A	Sediment	Chromium	85.2	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6020A	Sediment	Cobalt	43	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Copper	1430	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Iron	132000	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Lead	206	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Magnesium	5190	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Manganese	2570	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA7471B	Sediment	Mercury	0.003	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6020A	Sediment	Nickel	16.2	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Potassium	2550	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Selenium	1.6	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Silver	3.43	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Sodium	1480	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Thallium	0.069	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6020A	Sediment	Vanadium	34.8	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-B4	SE-2-B4	2013-10-17	EPA6010C	Sediment	Zinc	10700	TRUE	mg/kg	79.17064781	1.089241353	-103.7799988	438170	5414293	OU 1 North	-1.68	5.7732	0.293	1
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Aluminum	6000	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Antimony	4.45	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6020A	Sediment	Arsenic	4.735	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Barium	233	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6020A	Sediment	Beryllium	0.2675	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6020A	Sediment	Cadmium	1.62	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Calcium	12200	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6020A	Sediment	Chromium	17.05	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6020A	Sediment	Cobalt	6.525	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Copper	98.8	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Iron	19950	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Lead	81.6	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Magnesium	7430	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Manganese	357.5	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA7471B	Sediment	Mercury	0.2495	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6020A	Sediment	Nickel	12.35	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Potassium	1110	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Selenium	0.4	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Silver	0.5485	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Sodium	164	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Thallium	0.137	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6020A	Sediment	Vanadium	18.9	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-C1	SE-2-C1	2013-10-19	EPA6010C	Sediment	Zinc	932	TRUE	mg/kg	77.81823857	21.99968787	-239.1399994	439808	5415828	OU 1 North	-2.4461	-0.952	-0.4048	2
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Aluminum	12000	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Aluminum	12000	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Aluminum	12000	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Aluminum	12000	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Antimony	32.7	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Antimony	32.7	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Antimony	32.7	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Antimony	32.7	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Arsenic	14.9	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Arsenic	14.9	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Arsenic	14.9	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Arsenic	14.9	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Barium	854	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Barium	854	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Barium	854	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Beryllium	0.5005	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Beryllium	0.5005	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Beryllium	0.5005	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Cadmium	2.68	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Cadmium	2.68	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Cadmium	2.68	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Cadmium	2.68	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Calcium	32100	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Calcium	32100	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Calcium	32100	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Calcium	32100	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Chromium	61.15	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Chromium	61.15	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Chromium	61.15	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Chromium	61.15	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Cobalt	29.25	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Cobalt	29.25	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Cobalt	29.25	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Cobalt	29.25	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Copper	1019.5	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Copper	1019.5	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Copper	1019.5	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Copper	1019.5	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Iron	93800	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Iron	93800	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Iron	93800	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Iron	93800	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Lead	337	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Lead	337	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Lead	337	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Magnesium	6470	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Magnesium	6470	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Magnesium	6470	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Magnesium	6470	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Manganese	1805	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Manganese	1805	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Manganese	1805	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Manganese	1805	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA7471B	Sediment	Mercury	0.123	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA7471B	Sediment	Mercury	0.123	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA7471B	Sediment	Mercury	0.123	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA7471B	Sediment	Mercury	0.123	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Nickel	12.95	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Nickel	12.95	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Nickel	12.95	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Nickel	12.95	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Potassium	2080	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Potassium	2080	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Potassium	2080	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Potassium	2080	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Selenium	1.55	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Selenium	1.55	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Selenium	1.55	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Selenium	1.55	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Silver	3.395	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Silver	3.395	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Silver	3.395	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Silver	3.395	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Sodium	960.5	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Sodium	960.5	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Sodium	960.5	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Sodium	960.5	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Thallium	0.292	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Thallium	0.292	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Thallium	0.292	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Thallium	0.292	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Vanadium	26.65	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Vanadium	26.65	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Vanadium	26.65	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6020A	Sediment	Vanadium	26.65	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Zinc	7975	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Zinc	7975	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Zinc	7975	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R1	SE-2-R1	2013-10-23	EPA6010C	Sediment	Zinc	7975	TRUE	mg/kg	93.83819615	5.192587757	-310.730011	441060	5417085	OU 1 North	-3.535	2.8888	0.3447	1
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Aluminum	5100	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Antimony	2.8	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6020A	Sediment	Arsenic	6.26	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Barium	550	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6020A	Sediment	Beryllium	0.227	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6020A	Sediment	Cadmium	3.7	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Calcium	36000	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6020A	Sediment	Chromium	14.2	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6020A	Sediment	Cobalt	5.05	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Copper	99.9	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Iron	27100	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Lead	184	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Magnesium	18200	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Manganese	449	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA7471B	Sediment	Mercury	0.194	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6020A	Sediment	Nickel	11.8	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Potassium	861	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Selenium	0.5	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Silver	0.799	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Sodium	157	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Thallium	0.228	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6020A	Sediment	Vanadium	20.6	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2-R3	SE-2-R3	2013-10-18	EPA6010C	Sediment	Zinc	1760	TRUE	mg/kg	86.34827173	13.65172827	319.8800049	440007	5416667	OU 1 North	-4.0925	-1.1775	-2.3501	2
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Aluminum	10200	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Antimony	16.6	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6020A	Sediment	Arsenic	12.2	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Barium	633	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6020A	Sediment	Beryllium	0.326	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6020A	Sediment	Cadmium	4.64	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Calcium	25900	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6020A	Sediment	Chromium	35.3	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6020A	Sediment	Cobalt	10.8	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Copper	518	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Iron	61400	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Lead	367	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Magnesium	9680	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Manganese	979	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA7471B	Sediment	Mercury	0.698	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6020A	Sediment	Nickel	16.1	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Potassium	1450	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Selenium	1.6	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Silver	1.29	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Sodium	297	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Thallium	0.504	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6020A	Sediment	Vanadium	22.4	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C3	SE-2B-C3	2013-10-16	EPA6010C	Sediment	Zinc	3980	TRUE	mg/kg	87.45641026	12.47179487	-80.6500015	433666	5411568	OU 1 South	-4.4335	0.078	-0.4551	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Aluminum	19100	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Antimony	59.1	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6020A	Sediment	Arsenic	18.5	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Barium	1670	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6020A	Sediment	Beryllium	0.822	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6020A	Sediment	Cadmium	0.651	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Calcium	57000	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6020A	Sediment	Chromium	126	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6020A	Sediment	Cobalt	66.9	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Copper	2020	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Iron	189000	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Lead	263	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Magnesium	6140	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Manganese	3480	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA7471B	Sediment	Mercury	0.005	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6020A	Sediment	Nickel	16.5	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Potassium	3500	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Selenium	2.8	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Silver	4.89	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Sodium	2070	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Thallium	0.043	FALSE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6020A	Sediment	Vanadium	41.1	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-C4	SE-2B-C4	2013-10-24	EPA6010C	Sediment	Zinc	16000	TRUE	mg/kg	98.19772893	0.156266278	-66.3199997	435613	5413154	OU 1 South	-1.6632	6.2138	0.3263	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Aluminum	12600	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Antimony	42	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6020A	Sediment	Arsenic	10.8	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Barium	957	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6020A	Sediment	Beryllium	0.472	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6020A	Sediment	Cadmium	0.656	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Calcium	34900	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6020A	Sediment	Chromium	65.9	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6020A	Sediment	Cobalt	35.1	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Copper	1150	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Iron	107000	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Lead	107	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Magnesium	4660	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Manganese	2060	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA7471B	Sediment	Mercury	0.01	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6020A	Sediment	Nickel	10.6	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Potassium	2180	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Selenium	1.4	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Silver	2.23	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Sodium	1190	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Thallium	0.046	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6020A	Sediment	Vanadium	25.9	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R1	SE-2B-R1	2013-10-17	EPA6010C	Sediment	Zinc	8400	TRUE	mg/kg	94.20305919	5.69718466	-75.1200027	435499	5412970	OU 1 South	-1.9214	5.2848	0.1791	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Aluminum	10200	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Antimony	23.6	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6020A	Sediment	Arsenic	7.41	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Barium	588	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6020A	Sediment	Beryllium	0.345	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6020A	Sediment	Cadmium	0.554	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Calcium	33500	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6020A	Sediment	Chromium	39	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6020A	Sediment	Cobalt	19.2	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Copper	705	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Iron	67100	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Lead	115	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Magnesium	5070	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Manganese	1310	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA7471B	Sediment	Mercury	0.016	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6020A	Sediment	Nickel	9.43	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Potassium	1620	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Selenium	1	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Silver	1.4	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Sodium	806	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Thallium	0.061	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6020A	Sediment	Vanadium	20.8	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	2B-R2	SE-2B-R2	2013-10-24	EPA6010C	Sediment	Zinc	4900	TRUE	mg/kg	69.2201298	1.468241302	92	435849	5413606	OU 1 South	-2.2285	4.0548	-0.2629	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Aluminum	18400	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Antimony	62.4	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6020A	Sediment	Arsenic	17.7	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Barium	1640	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6020A	Sediment	Beryllium	0.672	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6020A	Sediment	Cadmium	1.37	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Calcium	55800	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6020A	Sediment	Chromium	105	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6020A	Sediment	Cobalt	54.1	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Copper	1830	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Iron	182000	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Lead	231	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Magnesium	6090	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Manganese	3370	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA7471B	Sediment	Mercury	0.022	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6020A	Sediment	Nickel	13.8	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Potassium	3290	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Selenium	2.5	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Silver	3.61	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Sodium	1870	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Thallium	0.058	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6020A	Sediment	Vanadium	36.2	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B1	SE-3-B1	2013-10-16	EPA6010C	Sediment	Zinc	15200	TRUE	mg/kg	91.07503122	0.249783841	-13.4099998	432375	5410510	OU 1 South	-2.5168	5.3537	0.2718	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Aluminum	27000	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Antimony	98	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6020A	Sediment	Arsenic	32.7	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Barium	2370	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6020A	Sediment	Beryllium	0.917	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6020A	Sediment	Cadmium	1.74	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Calcium	85200	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6020A	Sediment	Chromium	146	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6020A	Sediment	Cobalt	70.4	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Copper	3040	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Iron	291000	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Lead	1080	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Magnesium	8660	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Manganese	5710	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA7471B	Sediment	Mercury	0.009	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6020A	Sediment	Nickel	18.1	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Potassium	5090	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Selenium	3.6	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Silver	5.04	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Sodium	2740	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Thallium	0.052	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6020A	Sediment	Vanadium	49	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B2	SE-3-B2	2013-10-16	EPA6010C	Sediment	Zinc	28200	TRUE	mg/kg	97.47026809	0.332594235	-49.8300018	432199	5408503	OU 1 South	-2.8598	5.8154	0.1698	1
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Aluminum	6820	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Antimony	5.84	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6020A	Sediment	Arsenic	8.19	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Barium	416	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6020A	Sediment	Beryllium	0.316	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6020A	Sediment	Cadmium	3.76	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Calcium	22700	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6020A	Sediment	Chromium	19.4	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6020A	Sediment	Cobalt	7.19	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Copper	116	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Iron	27200	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Lead	192	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Magnesium	13800	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Manganese	326	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA7471B	Sediment	Mercury	0.323	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6020A	Sediment	Nickel	16.3	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Potassium	1160	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Selenium	0.6	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Silver	1.35	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Sodium	138	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Thallium	0.421	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6020A	Sediment	Vanadium	22.2	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B3	SE-3-B3	2013-10-16	EPA6010C	Sediment	Zinc	1540	TRUE	mg/kg	81.49094782	18.45580405	493.0299988	431659	5408579	OU 1 South	-3.4527	-1.731	-1.3581	2
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Aluminum	20500	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Antimony	67.4	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6020A	Sediment	Arsenic	21	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Barium	1740	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6020A	Sediment	Beryllium	0.801	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6020A	Sediment	Cadmium	0.942	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Calcium	62200	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6020A	Sediment	Chromium	120	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6020A	Sediment	Cobalt	55	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Copper	2100	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Iron	201000	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Lead	294	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Magnesium	6860	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Manganese	3760	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA7471B	Sediment	Mercury	0.014	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6020A	Sediment	Nickel	16.2	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Potassium	3690	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Selenium	2.9	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Silver	4.2	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Sodium	1990	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Thallium	0.056	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6020A	Sediment	Vanadium	43.3	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-B4	SE-3-B4	2013-10-14	EPA6010C	Sediment	Zinc	16800	TRUE	mg/kg	98.36340333	1.05491472	153.2299957	431063	5407461	OU 1 South	-2.2037	5.5757	0.175	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Aluminum	17000	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Antimony	8.98	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6020A	Sediment	Arsenic	10.9	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Barium	391	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6020A	Sediment	Beryllium	0.436	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6020A	Sediment	Cadmium	2.19	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Calcium	34000	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6020A	Sediment	Chromium	22.7	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6020A	Sediment	Cobalt	20.6	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Copper	641	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Iron	100000	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Lead	523	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Magnesium	9230	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Manganese	1840	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA7471B	Sediment	Mercury	0.045	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6020A	Sediment	Nickel	9.46	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Potassium	3510	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Selenium	1.6	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Silver	1.06	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Sodium	1880	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Thallium	0.116	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6020A	Sediment	Vanadium	43.5	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C1	SE-3-C1	2013-10-15	EPA6010C	Sediment	Zinc	8800	TRUE	mg/kg	89.85209129	0.999118425	475.5299988	431411	5407941	OU 1 South	-2.9119	2.4998	0.2568	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Aluminum	21100	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Antimony	11.9	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6020A	Sediment	Arsenic	18	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Barium	823	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6020A	Sediment	Beryllium	0.133	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6020A	Sediment	Cadmium	2.75	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Calcium	49600	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Chromium	53	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6020A	Sediment	Cobalt	27.4	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Copper	1100	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Iron	167000	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Lead	700	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Magnesium	7370	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Manganese	3350	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA7471B	Sediment	Mercury	0.013	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6020A	Sediment	Nickel	10.3	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Potassium	3600	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Selenium	5	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Silver	2.06	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Sodium	1440	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Thallium	0.091	FALSE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Vanadium	44.9	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-C4	SE-3-C4	2013-10-08	EPA6010C	Sediment	Zinc	17300	TRUE	mg/kg	99.11925491	0.5972869	-55.0200005	428079	5407611	OU 1 South	-3.1836	4.3669	-0.3967	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Aluminum	8500	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Antimony	29.4	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6020A	Sediment	Arsenic	9.19	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Barium	546	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6020A	Sediment	Beryllium	0.346	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6020A	Sediment	Cadmium	1.76	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Calcium	25700	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6020A	Sediment	Chromium	39.8	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6020A	Sediment	Cobalt	20.1	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Copper	619	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Iron	55800	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Lead	154	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Magnesium	9060	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Manganese	1100	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA7471B	Sediment	Mercury	0.14	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6020A	Sediment	Nickel	11.4	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Potassium	1370	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Selenium	0.7	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Silver	2.93	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Sodium	502	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Thallium	0.15	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6020A	Sediment	Vanadium	21	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R1	SE-3-R1	2013-10-17	EPA6010C	Sediment	Zinc	4080	TRUE	mg/kg	94.4132918	5.482866044	175.8600006	432831	5411179	OU 1 South	-3.1502	1.9775	-0.226	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Aluminum	18900	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Antimony	65.4	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6020A	Sediment	Arsenic	23.1	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Barium	1630	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6020A	Sediment	Beryllium	0.768	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6020A	Sediment	Cadmium	1.97	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Calcium	60400	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6020A	Sediment	Chromium	119	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6020A	Sediment	Cobalt	56.1	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Copper	2020	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Iron	198000	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Lead	379	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Magnesium	7080	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Manganese	3470	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA7471B	Sediment	Mercury	0.054	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6020A	Sediment	Nickel	17	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Potassium	3420	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Selenium	2.5	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Silver	4.48	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Sodium	1830	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Thallium	0.123	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6020A	Sediment	Vanadium	42	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R10	SE-3-R10	2013-10-15	EPA6010C	Sediment	Zinc	16700	TRUE	mg/kg	97.97814766	1.797202083	38.7299995	427599	5407778	OU 1 South	-2.9495	4.6388	0.3387	1
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Aluminum	8430	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Antimony	2.8	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6020A	Sediment	Arsenic	6.86	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Barium	363	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6020A	Sediment	Beryllium	0.363	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6020A	Sediment	Cadmium	3.85	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Calcium	17000	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6020A	Sediment	Chromium	19.1	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6020A	Sediment	Cobalt	6.49	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Copper	71.5	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Iron	23100	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Lead	176	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Magnesium	12000	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Manganese	309	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA7471B	Sediment	Mercury	0.25	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6020A	Sediment	Nickel	17	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Potassium	1330	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Selenium	0.5	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Silver	0.931	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Sodium	147	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Thallium	0.439	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6020A	Sediment	Vanadium	24.6	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R2	SE-3-R2	2013-10-14	EPA6010C	Sediment	Zinc	965	TRUE	mg/kg	54.8927477	45.1072523	156.4400024	431977	5409802	OU 1 South	-2.7854	-2.0363	-0.9232	2
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Aluminum	15350	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Aluminum	15350	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Aluminum	15350	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Aluminum	15350	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Antimony	43.25	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Antimony	43.25	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Antimony	43.25	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Antimony	43.25	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Arsenic	12.95	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Arsenic	12.95	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Arsenic	12.95	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Arsenic	12.95	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Barium	1190	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Barium	1190	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Barium	1190	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Barium	1190	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Beryllium	0.534	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Beryllium	0.534	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Beryllium	0.534	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Beryllium	0.534	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Cadmium	0.8045	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Cadmium	0.8045	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Cadmium	0.8045	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Cadmium	0.8045	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Calcium	43500	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Calcium	43500	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Chromium	77	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Chromium	77	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Chromium	77	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Chromium	77	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Cobalt	36.75	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Cobalt	36.75	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Cobalt	36.75	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Cobalt	36.75	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Copper	1465	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Copper	1465	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Copper	1465	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Copper	1465	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Iron	128500	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Iron	128500	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Iron	128500	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Iron	128500	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Lead	245	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Lead	245	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Lead	245	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Lead	245	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Magnesium	6075	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Magnesium	6075	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Magnesium	6075	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Magnesium	6075	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Manganese	2605	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Manganese	2605	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Manganese	2605	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Manganese	2605	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA7471B	Sediment	Mercury	0.0175	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA7471B	Sediment	Mercury	0.0175	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA7471B	Sediment	Mercury	0.0175	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA7471B	Sediment	Mercury	0.0175	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Nickel	12.35	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Nickel	12.35	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Nickel	12.35	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Nickel	12.35	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Potassium	2700	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Potassium	2700	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Potassium	2700	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Potassium	2700	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Selenium	1.8	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Selenium	1.8	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Selenium	1.8	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Selenium	1.8	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Silver	2.37	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Silver	2.37	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Silver	2.37	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Silver	2.37	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Sodium	1390	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Sodium	1390	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Sodium	1390	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Sodium	1390	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Thallium	0.0575	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Thallium	0.0575	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Thallium	0.0575	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Thallium	0.0575	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Vanadium	30.4	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Vanadium	30.4	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Vanadium	30.4	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6020A	Sediment	Vanadium	30.4	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Zinc	10850	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Zinc	10850	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Zinc	10850	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R3	SE-3-R3	2013-10-15	EPA6010C	Sediment	Zinc	10850	TRUE	mg/kg	99.55129821	0.347869927	-5.6900001	432257	5409127	OU 1 South	-2.4605	4.9841	0.1529	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Aluminum	5380	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Antimony	12	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6020A	Sediment	Arsenic	4.69	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Barium	237	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6020A	Sediment	Beryllium	0.205	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6020A	Sediment	Cadmium	1.26	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Calcium	12900	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6020A	Sediment	Chromium	17	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6020A	Sediment	Cobalt	7.49	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Copper	203	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Iron	26100	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Lead	88	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Magnesium	6100	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Manganese	503	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA7471B	Sediment	Mercury	0.053	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6020A	Sediment	Nickel	8.59	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Potassium	906	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Selenium	0.3	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Silver	2.47	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Sodium	230	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Thallium	0.089	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6020A	Sediment	Vanadium	14.9	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R6	SE-3-R6	2013-10-15	EPA6010C	Sediment	Zinc	1730	TRUE	mg/kg	96.33357297	3.666427031	214.3200073	430836	5407398	OU 1 South	-2.7124	0.8817	-0.3554	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Aluminum	18500	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Antimony	61.7	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6020A	Sediment	Arsenic	16.8	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Barium	1510	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6020A	Sediment	Beryllium	0.654	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6020A	Sediment	Cadmium	0.687	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Calcium	54600	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6020A	Sediment	Chromium	101	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6020A	Sediment	Cobalt	47	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Copper	2050	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Iron	182000	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Lead	390	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Magnesium	6220	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Manganese	3420	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA7471B	Sediment	Mercury	0.006	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6020A	Sediment	Nickel	14.4	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Potassium	3260	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Selenium	2.3	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Silver	3.4	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Sodium	1780	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Thallium	0.053	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6020A	Sediment	Vanadium	36.5	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R7	SE-3-R7	2013-10-15	EPA6010C	Sediment	Zinc	15700	TRUE	mg/kg	99.45279077	0.238782211	65.2200012	430299	5407152	OU 1 South	-2.2196	5.8869	0.1836	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Aluminum	25700	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Antimony	83.1	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6020A	Sediment	Arsenic	36.8	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Barium	2390	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6020A	Sediment	Beryllium	1.01	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6020A	Sediment	Cadmium	1.55	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Calcium	83200	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6020A	Sediment	Chromium	143	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6020A	Sediment	Cobalt	63	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Copper	3370	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Iron	281000	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Lead	441	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Magnesium	7760	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Manganese	5330	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA7471B	Sediment	Mercury	0.005	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6020A	Sediment	Nickel	21.4	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Potassium	4770	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Selenium	3.3	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Silver	7.32	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Sodium	2720	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Thallium	0.061	FALSE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6020A	Sediment	Vanadium	47.6	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R8	SE-3-R8	2013-10-24	EPA6010C	Sediment	Zinc	23500	TRUE	mg/kg	96.84157417	0.272452069	-19.9899998	429442	5407277	OU 1 South	-2.2903	6.1088	-0.0792	1
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Aluminum	6880	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Antimony	10.5	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6020A	Sediment	Arsenic	9.38	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Barium	594	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6020A	Sediment	Beryllium	0.302	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6020A	Sediment	Cadmium	5.82	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Calcium	32600	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6020A	Sediment	Chromium	19.7	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6020A	Sediment	Cobalt	7.61	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Copper	196	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Iron	28800	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Lead	311	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Magnesium	17600	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Manganese	479	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA7471B	Sediment	Mercury	0.432	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6020A	Sediment	Nickel	13.4	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Potassium	1200	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Selenium	0.6	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Silver	2.17	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Sodium	185	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Thallium	0.283	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6020A	Sediment	Vanadium	20.9	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3-R9	SE-3-R9	2013-10-24	EPA6010C	Sediment	Zinc	1870	TRUE	mg/kg	76.23045744	23.67303609	222.25	428489	5407829	OU 1 South	-4.4072	-1.4897	-1.7391	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Aluminum	7720	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Antimony	4.36	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6020A	Sediment	Arsenic	6.62	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Barium	373	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6020A	Sediment	Beryllium	0.373	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6020A	Sediment	Cadmium	3.8	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Calcium	25500	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Chromium	21.6	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6020A	Sediment	Cobalt	6.63	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Copper	87.5	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Iron	20200	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Lead	155	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Magnesium	15500	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Manganese	307	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA7471B	Sediment	Mercury	0.23	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6020A	Sediment	Nickel	16.6	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Potassium	1580	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Selenium	0.7	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Silver	1.14	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Sodium	137	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Thallium	0.259	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Vanadium	29	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C2	SE-3B-C2	2013-10-08	EPA6010C	Sediment	Zinc	912	TRUE	mg/kg	71.46909828	28.5106383	-135.0599976	426134	5404745	OU 1 South	-2.7042	-2.195	-1.3535	2
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Aluminum	21400	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Antimony	69	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6020A	Sediment	Arsenic	23.7	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Barium	1900	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6020A	Sediment	Beryllium	0.156	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6020A	Sediment	Cadmium	0.952	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Calcium	72500	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Chromium	129	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6020A	Sediment	Cobalt	53.2	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Copper	2410	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Iron	220000	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Lead	459	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Magnesium	7140	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Manganese	4030	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA7471B	Sediment	Mercury	0.009	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6020A	Sediment	Nickel	16.7	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Potassium	4080	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Selenium	3.6	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Silver	3.66	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Sodium	2140	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Thallium	0.062	FALSE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Vanadium	43.2	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C3	SE-3B-C3	2013-10-08	EPA6010C	Sediment	Zinc	20000	TRUE	mg/kg	99.41956882	0.518242123	-126.0199966	422938	5401182	OU 1 South	-2.5419	6.1735	-0.6757	1
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Aluminum	10600	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Antimony	3.6	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6020A	Sediment	Arsenic	16.3	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Barium	741	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6020A	Sediment	Beryllium	0.399	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6020A	Sediment	Cadmium	9.13	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Calcium	19300	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Chromium	29.3	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6020A	Sediment	Cobalt	8.39	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Copper	147	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Iron	31200	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Lead	537	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Magnesium	15000	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Manganese	339	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA7471B	Sediment	Mercury	1.9	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6020A	Sediment	Nickel	22.3	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Potassium	1550	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Selenium	1.8	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Silver	1.83	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Sodium	159	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Thallium	0.483	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Vanadium	36	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-C4	SE-3B-C4	2013-10-08	EPA6010C	Sediment	Zinc	1410	TRUE	mg/kg	39.93438712	60.06561288	233.0700073	422097	5398703	OU 1 South	-4.2405	-2.9802	-1.0414	2
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Aluminum	22900	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Antimony	69.9	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6020A	Sediment	Arsenic	23.8	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Barium	1990	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6020A	Sediment	Beryllium	0.844	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6020A	Sediment	Cadmium	0.696	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Calcium	69000	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6020A	Sediment	Chromium	129	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6020A	Sediment	Cobalt	56.8	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Copper	2570	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Iron	216000	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Lead	336	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Magnesium	8170	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Manganese	4380	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA7471B	Sediment	Mercury	0.005	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6020A	Sediment	Nickel	18.9	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Potassium	4090	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Selenium	2.6	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Silver	3.59	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Sodium	2390	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Thallium	0.048	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6020A	Sediment	Vanadium	46.5	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	3B-R2	SE-3B-R2	2013-10-14	EPA6010C	Sediment	Zinc	18200	TRUE	mg/kg	94.51237406	0.313019662	3.4000001	425849	5403961	OU 1 South	-1.8389	6.1253	-0.0731	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Aluminum	22400	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Antimony	35.9	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6020A	Sediment	Arsenic	22.9	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Barium	1530	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6020A	Sediment	Beryllium	0.794	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6020A	Sediment	Cadmium	1.38	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Calcium	62200	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Chromium	103	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6020A	Sediment	Cobalt	45.9	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Copper	2030	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Iron	195000	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Lead	439	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Magnesium	7730	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Manganese	4050	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA7471B	Sediment	Mercury	0.009	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6020A	Sediment	Nickel	14.8	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Potassium	4290	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Selenium	3.5	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Silver	2.76	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Sodium	2000	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Thallium	0.063	FALSE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Vanadium	45.3	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B1	SE-4-B1	2013-10-07	EPA6010C	Sediment	Zinc	17800	TRUE	mg/kg	98.97070467	0.366191607	121.5599976	424499	5393517	OU 1 South	-2.3793	5.2585	0.1236	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Aluminum	20000	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Antimony	34.1	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6020A	Sediment	Arsenic	17.6	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Barium	1260	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6020A	Sediment	Beryllium	0.631	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6020A	Sediment	Cadmium	1.5	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Calcium	52600	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Chromium	85	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6020A	Sediment	Cobalt	36.4	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Copper	1610	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Iron	187000	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Lead	404	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Magnesium	7120	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Manganese	3540	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA7471B	Sediment	Mercury	0.012	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6020A	Sediment	Nickel	13.3	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Potassium	3720	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Selenium	3.2	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Silver	2.73	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Sodium	1600	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Thallium	0.063	FALSE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Vanadium	40.5	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B2	SE-4-B2	2013-10-05	EPA6010C	Sediment	Zinc	17000	TRUE	mg/kg	99.30842279	0.474814203	82.2900009	422289	5391549	OU 2 Transitional CSM Unit	-2.5954	4.9408	0.2137	1
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Aluminum	10600	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Antimony	3.52	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6020A	Sediment	Arsenic	9.16	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Barium	573	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6020A	Sediment	Beryllium	0.479	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6020A	Sediment	Cadmium	4.93	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Calcium	27600	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Chromium	26.7	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6020A	Sediment	Cobalt	8.78	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Copper	131	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Iron	26700	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Lead	220	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Magnesium	18400	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Manganese	391	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA7471B	Sediment	Mercury	0.434	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6020A	Sediment	Nickel	21.3	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Potassium	1670	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Silver	1.58	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Sodium	182	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Thallium	0.46	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Vanadium	35.9	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B3	SE-4-B3	2013-10-05	EPA6010C	Sediment	Zinc	1080	TRUE	mg/kg	40.33952255	59.66047745	384.3299866	420546	5391417	OU 2 Transitional CSM Unit	-3.0095	-2.1798	-1.2644	2
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Aluminum	15500	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Antimony	24.6	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6020A	Sediment	Arsenic	12.2	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Barium	778	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6020A	Sediment	Beryllium	0.533	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6020A	Sediment	Cadmium	1.69	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Calcium	35000	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Chromium	55.7	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6020A	Sediment	Cobalt	23.2	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Copper	971	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Iron	117000	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Lead	331	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Magnesium	6300	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Manganese	2060	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA7471B	Sediment	Mercury	0.033	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6020A	Sediment	Nickel	12.6	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Potassium	2720	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Selenium	2.4	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Silver	1.82	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Sodium	1150	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Thallium	0.096	FALSE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Vanadium	35.4	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B4	SE-4-B4	2013-10-05	EPA6010C	Sediment	Zinc	10700	TRUE	mg/kg	80.87995655	15.98044541	-258.1499939	418964	5390736	OU 2 Transitional CSM Unit	-2.8844	3.5244	0.3894	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Aluminum	15800	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Antimony	9.77	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6020A	Sediment	Arsenic	11.7	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Barium	602	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6020A	Sediment	Beryllium	0.504	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6020A	Sediment	Cadmium	1.27	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Calcium	33200	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Chromium	36.5	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6020A	Sediment	Cobalt	19.1	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Copper	813	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Iron	126000	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Lead	514	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Magnesium	5950	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Manganese	2350	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA7471B	Sediment	Mercury	0.009	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6020A	Sediment	Nickel	9.52	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Potassium	2780	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Selenium	2.5	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Silver	1.35	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Sodium	1190	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Thallium	0.087	FALSE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Vanadium	34.3	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B5	SE-4-B5	2013-10-05	EPA6010C	Sediment	Zinc	13100	TRUE	mg/kg	98.62905612	0.789032449	35.7700005	418623	5389013	OU 2 Transitional CSM Unit	-2.7826	4.0207	0.3319	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Aluminum	21800	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Antimony	48.85	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6020A	Sediment	Arsenic	18.3	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Barium	1505	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6020A	Sediment	Beryllium	0.4695	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6020A	Sediment	Cadmium	1.345	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Calcium	61350	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Chromium	101.5	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6020A	Sediment	Cobalt	41.75	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Copper	1890	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Iron	209000	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Lead	450	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Magnesium	7125	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Manganese	3675	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA7471B	Sediment	Mercury	0.01	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6020A	Sediment	Nickel	13.7	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Potassium	4035	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Selenium	3.6	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Silver	3.12	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Sodium	1800	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Thallium	0.078	FALSE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Vanadium	44	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-B6	SE-4-B6	2013-10-08	EPA6010C	Sediment	Zinc	18400	TRUE	mg/kg	99.55201593	0.378297661	-39.3899994	423102	5391739	OU 1 South	-2.5607	5.3725	0.0333	1
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Aluminum	7640	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Antimony	0.091	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6020A	Sediment	Arsenic	1.93	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Barium	69.4	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6020A	Sediment	Beryllium	0.355	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6020A	Sediment	Cadmium	0.167	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Calcium	4280	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Chromium	21.2	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6020A	Sediment	Cobalt	5.05	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Copper	18.4	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Iron	16100	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Lead	7.4	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Magnesium	4620	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Manganese	226	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA7471B	Sediment	Mercury	0.016	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6020A	Sediment	Nickel	13.1	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Potassium	916	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Selenium	0.3	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Silver	0.102	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Sodium	144	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Thallium	0.077	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Vanadium	34.2	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C2	SE-4-C2	2013-10-07	EPA6010C	Sediment	Zinc	48.1	TRUE	mg/kg	73.0088948	26.93998569	1078.579956	418306	5391991	OU 2 Transitional CSM Unit	2.9941	0.0553	0.6513	3
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Aluminum	6570	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Antimony	2.26	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6020A	Sediment	Arsenic	6.38	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Barium	327	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6020A	Sediment	Beryllium	0.222	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6020A	Sediment	Cadmium	2.98	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Calcium	15000	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Chromium	19.1	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6020A	Sediment	Cobalt	5.46	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Copper	85	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Iron	23100	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Lead	168	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Magnesium	9720	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Manganese	329	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA7471B	Sediment	Mercury	0.231	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6020A	Sediment	Nickel	12.4	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Potassium	912	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Selenium	0.4	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Silver	0.61	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Sodium	148	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Thallium	0.19	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Vanadium	29.7	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C3	SE-4-C3	2013-10-05	EPA6010C	Sediment	Zinc	1100	TRUE	mg/kg	84.41584557	15.40317716	-779.9400024	419430	5390225	OU 2 Transitional CSM Unit	-3.0549	-1.5193	-0.9417	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Aluminum	10900	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Antimony	2.11	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6020A	Sediment	Arsenic	8.14	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Barium	505	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6020A	Sediment	Beryllium	0.495	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6020A	Sediment	Cadmium	3.79	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Calcium	23300	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Chromium	26.5	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6020A	Sediment	Cobalt	8.4	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Copper	86.2	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Iron	24800	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Lead	157	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Magnesium	16000	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Manganese	364	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA7471B	Sediment	Mercury	0.283	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6020A	Sediment	Nickel	21.3	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Potassium	1800	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Selenium	0.7	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Silver	1.01	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Sodium	168	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Thallium	0.337	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Vanadium	36.1	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C4	SE-4-C4	2013-10-04	EPA6010C	Sediment	Zinc	795	TRUE	mg/kg	26.21388144	73.71661205	-318.3299866	419068	5388804	OU 2 Transitional CSM Unit	-2.2831	-2.0825	-1.1192	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Aluminum	18600	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Antimony	2.42	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6020A	Sediment	Arsenic	11.7	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Barium	307	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6020A	Sediment	Beryllium	0.702	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6020A	Sediment	Cadmium	6.03	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Calcium	9120	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Chromium	42.2	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6020A	Sediment	Cobalt	11.7	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Copper	97.6	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Iron	32800	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Lead	311	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Magnesium	11600	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Manganese	649	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA7471B	Sediment	Mercury	1.02	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6020A	Sediment	Nickel	30.9	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Potassium	2900	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Selenium	1.1	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Silver	1.59	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Sodium	343	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Thallium	0.746	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Vanadium	51.1	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C5	SE-4-C5	2013-10-04	EPA6010C	Sediment	Zinc	670	TRUE	mg/kg	0.979007813	99.02099219	-1528.900024	420013	5387633	OU 2 Transitional CSM Unit	-1.6522	-2.4207	0.9955	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Aluminum	16200	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Antimony	2.24	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6020A	Sediment	Arsenic	10.5	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Barium	384	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6020A	Sediment	Beryllium	0.606	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6020A	Sediment	Cadmium	6.96	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Calcium	9070	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Chromium	38.6	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6020A	Sediment	Cobalt	10.3	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Copper	106	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Iron	30600	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Lead	343	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Magnesium	10300	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Manganese	723	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA7471B	Sediment	Mercury	1.3	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6020A	Sediment	Nickel	26.8	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Potassium	2400	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Silver	1.76	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Sodium	280	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Thallium	0.639	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Vanadium	44.3	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-C6	SE-4-C6	2013-10-05	EPA6010C	Sediment	Zinc	788	TRUE	mg/kg	2.842942346	97.15705765	-2191.530029	419944	5386149	OU 2 Transitional CSM Unit	-2.3713	-2.349	0.8859	2
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Aluminum	18600	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Antimony	41.5	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6020A	Sediment	Arsenic	17.4	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Barium	1130	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6020A	Sediment	Beryllium	0.755	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6020A	Sediment	Cadmium	1.03	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Calcium	48800	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6020A	Sediment	Chromium	88.2	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6020A	Sediment	Cobalt	39.7	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Copper	1460	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Iron	147000	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Lead	620	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Magnesium	6780	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Manganese	2860	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA7471B	Sediment	Mercury	0.007	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6020A	Sediment	Nickel	14	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Potassium	3420	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Selenium	2.5	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Silver	2.8	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Sodium	1540	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Thallium	0.067	FALSE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6020A	Sediment	Vanadium	47.8	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R1	SE-4-R1	2013-10-24	EPA6010C	Sediment	Zinc	14200	TRUE	mg/kg	90.05675846	0.504519655	104.7799988	424340	5394268	OU 1 South	-2.3076	4.8062	0.3761	1
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Aluminum	13400	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Antimony	0.353	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6020A	Sediment	Arsenic	3.43	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Barium	153	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6020A	Sediment	Beryllium	0.648	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6020A	Sediment	Cadmium	0.857	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Calcium	5940	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Chromium	29.8	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6020A	Sediment	Cobalt	8.54	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Copper	33.5	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Iron	23000	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Lead	27.8	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Magnesium	7430	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Manganese	321	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA7471B	Sediment	Mercury	0.065	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6020A	Sediment	Nickel	21.7	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Potassium	1540	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Selenium	0.6	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Silver	0.265	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Sodium	246	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Thallium	0.217	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Vanadium	44.9	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4-R5	SE-4-R5	2013-10-08	EPA6010C	Sediment	Zinc	141	TRUE	mg/kg	21.66432204	78.31403528	714.7800293	419268	5391736	OU 2 Transitional CSM Unit	1.4254	-0.9292	0.9844	3
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Aluminum	7665	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Antimony	12	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6020A	Sediment	Arsenic	6.74	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Barium	397	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6020A	Sediment	Beryllium	0.2765	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6020A	Sediment	Cadmium	1.61	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Calcium	21550	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Chromium	32.3	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6020A	Sediment	Cobalt	12.2	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Copper	413.5	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Iron	44900	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Lead	137	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Magnesium	8705	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Manganese	855	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA7471B	Sediment	Mercury	0.072	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6020A	Sediment	Nickel	10.145	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Potassium	1110	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Selenium	0.65	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Silver	1.265	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Sodium	367.5	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Thallium	0.1295	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Vanadium	23.45	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C1	SE-4B-C1	2013-10-04	EPA6010C	Sediment	Zinc	3330	TRUE	mg/kg	93.48963574	6.449989938	-213.9199982	416961	5384343	OU 2 Transitional CSM Unit	-2.9278	1.5547	-0.3189	1
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Aluminum	15300	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Aluminum	15300	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Aluminum	15300	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Aluminum	15300	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Antimony	1.8	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Antimony	1.8	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Antimony	1.8	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Antimony	1.8	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Arsenic	7.945	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Arsenic	7.945	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Arsenic	7.945	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Arsenic	7.945	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Barium	409	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Barium	409	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Barium	409	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Barium	409	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Beryllium	0.667	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Beryllium	0.667	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Beryllium	0.667	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Beryllium	0.667	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Cadmium	3.48	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Cadmium	3.48	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Cadmium	3.48	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Cadmium	3.48	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Calcium	14550	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Calcium	14550	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Calcium	14550	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Calcium	14550	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Chromium	32.15	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Chromium	32.15	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Chromium	32.15	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Chromium	32.15	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Cobalt	10.35	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Cobalt	10.35	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Cobalt	10.35	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Cobalt	10.35	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Copper	91.4	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Copper	91.4	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Copper	91.4	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Copper	91.4	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Iron	28650	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Iron	28650	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Iron	28650	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Iron	28650	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Lead	137.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Lead	137.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Lead	137.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Lead	137.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Magnesium	12700	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Magnesium	12700	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Magnesium	12700	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Magnesium	12700	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Manganese	414.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Manganese	414.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Manganese	414.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Manganese	414.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA7471B	Sediment	Mercury	0.936	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA7471B	Sediment	Mercury	0.936	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA7471B	Sediment	Mercury	0.936	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA7471B	Sediment	Mercury	0.936	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Nickel	26.4	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Nickel	26.4	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Nickel	26.4	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6020A	Sediment	Nickel	26.4	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Potassium	2180	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Potassium	2180	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Potassium	2180	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Potassium	2180	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Selenium	0.95	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Selenium	0.95	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Selenium	0.95	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Selenium	0.95	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Silver	1.015	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Silver	1.015	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Silver	1.015	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Silver	1.015	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Sodium	235	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Sodium	235	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Sodium	235	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Sodium	235	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Thallium	0.374	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Thallium	0.374	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Thallium	0.374	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Thallium	0.374	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Vanadium	43.3	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Vanadium	43.3	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Vanadium	43.3	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Vanadium	43.3	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Zinc	581.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Zinc	581.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Zinc	581.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C2	SE-4B-C2	2013-10-04	EPA6010C	Sediment	Zinc	581.5	TRUE	mg/kg	5.148429657	94.83722931	-310.8399963	416725	5379563	OU 2 Upper Laucustrine CSM Unit	-1.716	-2.3023	0.0075	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Aluminum	13300	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Antimony	1.81	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6020A	Sediment	Arsenic	7.65	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Barium	375	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6020A	Sediment	Beryllium	0.574	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6020A	Sediment	Cadmium	3.14	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Calcium	13500	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Chromium	28.6	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6020A	Sediment	Cobalt	9.49	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Copper	84.2	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Iron	25300	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Lead	121	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Magnesium	11200	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Manganese	402	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA7471B	Sediment	Mercury	0.289	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6020A	Sediment	Nickel	23.5	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Potassium	1850	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Silver	0.887	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Sodium	205	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Thallium	0.371	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Vanadium	38.7	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C3	SE-4B-C3	2013-10-04	EPA6010C	Sediment	Zinc	550	TRUE	mg/kg	10.50263284	89.49736716	-308.269989	413004	5373264	OU 2 Upper Laucustrine CSM Unit	-1.5003	-1.8476	-0.1476	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Aluminum	15000	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Antimony	2.03	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6020A	Sediment	Arsenic	16.1	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Barium	1030	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6020A	Sediment	Beryllium	0.562	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6020A	Sediment	Cadmium	11.8	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Calcium	31300	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6020A	Sediment	Chromium	28.8	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6020A	Sediment	Cobalt	9.92	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Copper	85.1	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Iron	30800	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Lead	601	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Magnesium	23300	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Manganese	644	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA7471B	Sediment	Mercury	1.52	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6020A	Sediment	Nickel	27.5	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Potassium	2120	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Selenium	1.2	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Silver	1.3	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Sodium	246	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Thallium	0.687	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Vanadium	43.3	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	4B-C4	SE-4B-C4	2013-10-01	EPA6010C	Sediment	Zinc	1310	TRUE	mg/kg	10.77362145	89.17541535	-388.0700073	410842	5368240	OU 2 Upper Laucustrine CSM Unit	-3.8332	-2.9606	-1.425	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Aluminum	14100	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Antimony	0.621	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6020A	Sediment	Arsenic	6.82	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Barium	176	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6020A	Sediment	Beryllium	0.525	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6020A	Sediment	Cadmium	2.57	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Calcium	9130	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6020A	Sediment	Chromium	28.8	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6020A	Sediment	Cobalt	10.1	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Copper	42.6	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Iron	24200	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Lead	139	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Magnesium	8100	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Manganese	662	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA7471B	Sediment	Mercury	0.396	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6020A	Sediment	Nickel	26.5	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Potassium	1990	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Silver	0.497	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Sodium	251	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Thallium	0.582	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Vanadium	37.3	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B1	SE-5-B1	2013-09-28	EPA6010C	Sediment	Zinc	365	TRUE	mg/kg	27.56518082	72.20353238	-1293.189941	413953	5354594	OU 2 Upper Laucustrine CSM Unit	-0.6074	-1.7999	0.8416	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Aluminum	22700	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Antimony	2.42	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6020A	Sediment	Arsenic	18.8	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Barium	482	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6020A	Sediment	Beryllium	0.914	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6020A	Sediment	Cadmium	10.7	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Calcium	12900	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6020A	Sediment	Chromium	42.3	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6020A	Sediment	Cobalt	14.2	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Copper	99.2	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Iron	36800	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Lead	455	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Magnesium	14500	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Manganese	1110	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA7471B	Sediment	Mercury	1.36	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6020A	Sediment	Nickel	36	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Potassium	3260	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Selenium	1.7	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Silver	1.45	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Sodium	400	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Thallium	0.956	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Vanadium	56.7	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	5-B2	SE-5-B2	2013-09-28	EPA6010C	Sediment	Zinc	1060	TRUE	mg/kg	4.628344896	95.3716551	-692.9000244	413351	5354542	OU 2 Upper Laucustrine CSM Unit	-2.2178	-2.4954	0.6227	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Aluminum	18900	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Antimony	1.92	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6020A	Sediment	Arsenic	8.3	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Barium	323	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6020A	Sediment	Beryllium	0.71	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6020A	Sediment	Cadmium	3.52	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Calcium	9610	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6020A	Sediment	Chromium	31.4	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6020A	Sediment	Cobalt	11.5	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Copper	104	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Iron	31900	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Lead	161	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Magnesium	10700	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Manganese	621	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA7471B	Sediment	Mercury	0.407	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6020A	Sediment	Nickel	27.7	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Potassium	2520	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Selenium	1.1	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Silver	1.32	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Sodium	323	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Thallium	0.541	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Vanadium	48.3	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B3	SE-5-B3	2013-09-30	EPA6010C	Sediment	Zinc	546	TRUE	mg/kg	1.607311692	98.39268831	-25.9899998	412691	5354422	OU 2 Upper Laucustrine CSM Unit	-1.1448	-1.7071	0.759	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Aluminum	16700	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Antimony	1.79	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6020A	Sediment	Arsenic	8.5	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Barium	270	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6020A	Sediment	Beryllium	0.738	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6020A	Sediment	Cadmium	3.73	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Calcium	7600	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6020A	Sediment	Chromium	31.5	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6020A	Sediment	Cobalt	11.5	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Copper	95.8	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Iron	28700	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Lead	159	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Magnesium	9060	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Manganese	595	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA7471B	Sediment	Mercury	0.479	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6020A	Sediment	Nickel	27.8	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Potassium	2270	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Selenium	1.1	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Silver	1.1	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Sodium	291	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Thallium	0.58	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Vanadium	43	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B4	SE-5-B4	2013-09-27	EPA6010C	Sediment	Zinc	503	TRUE	mg/kg	3.607176582	96.39282342	-531.5599976	413420	5352207	OU 2 Upper Laucustrine CSM Unit	-1.1545	-1.8599	1.0804	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Aluminum	20300	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Antimony	2.2	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6020A	Sediment	Arsenic	11.2	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Barium	306	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6020A	Sediment	Beryllium	0.863	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6020A	Sediment	Cadmium	5.26	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Calcium	7810	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6020A	Sediment	Chromium	39.1	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6020A	Sediment	Cobalt	13.9	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Copper	113	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Iron	34000	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Lead	236	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Magnesium	10600	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Manganese	764	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA7471B	Sediment	Mercury	0.638	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6020A	Sediment	Nickel	33.7	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Potassium	2740	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Selenium	1.4	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Silver	1.47	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Sodium	350	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Thallium	0.81	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Vanadium	51.1	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B5	SE-5-B5	2013-09-27	EPA6010C	Sediment	Zinc	611	TRUE	mg/kg	3.871358	95.85643714	-605.3400269	413958	5351688	OU 2 Upper Laucustrine CSM Unit	-1.2505	-1.987	1.2818	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Aluminum	22100	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Antimony	2.2	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6020A	Sediment	Arsenic	12.9	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Barium	357	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6020A	Sediment	Beryllium	0.791	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6020A	Sediment	Cadmium	7.62	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Calcium	9370	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6020A	Sediment	Chromium	36.5	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6020A	Sediment	Cobalt	12.7	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Copper	96.6	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Iron	35200	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Lead	341	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Magnesium	12200	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Manganese	891	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA7471B	Sediment	Mercury	1.21	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6020A	Sediment	Nickel	31.9	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Potassium	3080	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Selenium	1.4	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Silver	1.37	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Sodium	378	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Thallium	0.72	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Vanadium	54.3	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-B6	SE-5-B6	2013-09-27	EPA6010C	Sediment	Zinc	838	TRUE	mg/kg	3.096943408	96.90305659	-720.2999878	414417	5351559	OU 2 Upper Laucustrine CSM Unit	-1.8595	-2.4089	1.0221	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Aluminum	20000	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Antimony	1.61	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6020A	Sediment	Arsenic	8.18	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Barium	333	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6020A	Sediment	Beryllium	0.726	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6020A	Sediment	Cadmium	3.47	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Calcium	10400	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6020A	Sediment	Chromium	30.2	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6020A	Sediment	Cobalt	11.2	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Copper	106	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Iron	34000	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Lead	155	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Magnesium	11500	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Manganese	599	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA7471B	Sediment	Mercury	0.308	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6020A	Sediment	Nickel	27.5	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Potassium	2620	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Selenium	1.2	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Silver	1.01	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Sodium	331	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Thallium	0.43	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Vanadium	51.5	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C1	SE-5-C1	2013-09-30	EPA6010C	Sediment	Zinc	589	TRUE	mg/kg	1.682022713	98.31797729	-241	412643	5357586	OU 2 Upper Laucustrine CSM Unit	-1.0667	-1.6428	0.6336	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Aluminum	16400	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Antimony	1.59	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6020A	Sediment	Arsenic	9.94	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Barium	236	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6020A	Sediment	Beryllium	0.601	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6020A	Sediment	Cadmium	4.47	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Calcium	7190	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6020A	Sediment	Chromium	29.2	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6020A	Sediment	Cobalt	10.1	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Copper	73.7	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Iron	27900	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Lead	201	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Magnesium	9010	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Manganese	635	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA7471B	Sediment	Mercury	0.76	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6020A	Sediment	Nickel	25	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Potassium	2400	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Selenium	1	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Silver	1.02	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Sodium	291	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Thallium	0.597	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Vanadium	44.7	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C2	SE-5-C2	2013-09-30	EPA6010C	Sediment	Zinc	493	TRUE	mg/kg	2.20226641	97.79773359	514.1599731	412149	5354419	OU 2 Upper Laucustrine CSM Unit	-1.3427	-2.238	1.0153	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Aluminum	19100	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Antimony	1.87	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6020A	Sediment	Arsenic	8.93	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Barium	284	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6020A	Sediment	Beryllium	0.739	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6020A	Sediment	Cadmium	4.77	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Calcium	7640	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6020A	Sediment	Chromium	35	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6020A	Sediment	Cobalt	12.4	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Copper	94.1	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Iron	30800	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Lead	221	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Magnesium	10000	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Manganese	634	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA7471B	Sediment	Mercury	0.848	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6020A	Sediment	Nickel	30.6	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Potassium	2670	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Selenium	1.3	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Silver	1.35	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Sodium	360	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Thallium	0.716	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Vanadium	48.8	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C3	SE-5-C3	2013-09-28	EPA6010C	Sediment	Zinc	522	TRUE	mg/kg	0.826753367	99.17324663	-214.1999969	412739	5352655	OU 2 Upper Laucustrine CSM Unit	-1.3098	-2.1764	1.2573	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Aluminum	20200	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Antimony	1.455	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6020A	Sediment	Arsenic	8.28	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Barium	273.5	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6020A	Sediment	Beryllium	0.7635	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6020A	Sediment	Cadmium	3.13	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Calcium	7500	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6020A	Sediment	Chromium	34.45	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6020A	Sediment	Cobalt	11.85	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Copper	84.7	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Iron	33050	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Lead	146	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Magnesium	10450	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Manganese	797	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA7471B	Sediment	Mercury	0.415	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6020A	Sediment	Nickel	29.55	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Potassium	2895	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Selenium	1.05	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Silver	1.06	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Sodium	368	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Thallium	0.624	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Vanadium	53.15	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5-C4	SE-5-C4	2013-09-27	EPA6010C	Sediment	Zinc	426.5	TRUE	mg/kg	1.38896114	98.61103886	429.1700134	413790	5350031	OU 2 Upper Laucustrine CSM Unit	-0.548	-1.6002	1.1705	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Aluminum	16700	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Antimony	1.2	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6020A	Sediment	Arsenic	6.93	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Barium	215	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6020A	Sediment	Beryllium	0.679	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6020A	Sediment	Cadmium	3.38	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Calcium	7680	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6020A	Sediment	Chromium	31.7	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6020A	Sediment	Cobalt	11.6	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Copper	61.8	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Iron	27700	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Lead	135	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Magnesium	9190	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Manganese	584	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA7471B	Sediment	Mercury	0.409	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6020A	Sediment	Nickel	29.2	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Potassium	2420	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Selenium	1	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Silver	0.869	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Sodium	346	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Thallium	0.66	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Vanadium	42.9	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C1	SE-5B-C1	2013-09-27	EPA6010C	Sediment	Zinc	361	TRUE	mg/kg	17.2463322	82.7536678	18.8700008	414804	5347923	OU 2 Upper Laucustrine CSM Unit	-0.5639	-1.8485	1.1655	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Aluminum	20900	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Antimony	5.02	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6020A	Sediment	Arsenic	15.8	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Barium	270	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6020A	Sediment	Beryllium	0.564	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6020A	Sediment	Cadmium	4.77	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Calcium	19700	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6020A	Sediment	Chromium	32.4	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6020A	Sediment	Cobalt	21.6	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Copper	329	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Iron	42800	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Lead	680	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Magnesium	10400	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Manganese	861	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA7471B	Sediment	Mercury	0.634	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6020A	Sediment	Nickel	25.8	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Potassium	4020	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Selenium	1.1	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Silver	1.56	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Sodium	1760	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Thallium	0.472	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Vanadium	56.2	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C2	SE-5B-C2	2013-09-26	EPA6010C	Sediment	Zinc	2230	TRUE	mg/kg	32.79729158	65.59458316	39.4799995	414102	5343194	OU 2 Upper Laucustrine CSM Unit	-2.4644	-0.8405	0.8736	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Aluminum	8210	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Antimony	0.175	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6020A	Sediment	Arsenic	2.52	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Barium	71.8	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6020A	Sediment	Beryllium	0.266	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6020A	Sediment	Cadmium	1.19	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Calcium	2390	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6020A	Sediment	Chromium	11.4	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6020A	Sediment	Cobalt	4.24	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Copper	15.9	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Iron	12900	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Lead	85.5	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Magnesium	3470	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Manganese	173	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA7471B	Sediment	Mercury	0.15	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6020A	Sediment	Nickel	10.7	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Potassium	1300	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Selenium	0.2	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Silver	0.132	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Sodium	114	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Thallium	0.368	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Vanadium	20.9	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C3	SE-5B-C3	2013-09-26	EPA6010C	Sediment	Zinc	196	TRUE	mg/kg	67.63469622	32.26022163	430.9400024	413656	5343212	OU 2 Upper Laucustrine CSM Unit	-0.3635	-2.2918	1.5486	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Aluminum	18400	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Antimony	2.13	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6020A	Sediment	Arsenic	9.8	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Barium	272	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6020A	Sediment	Beryllium	0.651	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6020A	Sediment	Cadmium	7.77	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Calcium	7690	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6020A	Sediment	Chromium	35.3	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6020A	Sediment	Cobalt	11.4	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Copper	74.3	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Iron	26800	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Lead	324	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Magnesium	10400	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Manganese	605	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA7471B	Sediment	Mercury	1.47	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6020A	Sediment	Nickel	29.5	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Potassium	2770	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Selenium	1.3	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Silver	1.15	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Sodium	343	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Thallium	0.718	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Vanadium	43.8	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	5B-C4	SE-5B-C4	2013-09-26	EPA6010C	Sediment	Zinc	722	TRUE	mg/kg	3.810945274	96.18905473	839.8400269	410882	5339276	OU 2 Upper Laucustrine CSM Unit	-1.9343	-2.8199	1.2497	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Aluminum	14600	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Antimony	0.404	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6020A	Sediment	Arsenic	4.85	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Barium	142	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6020A	Sediment	Beryllium	0.45	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6020A	Sediment	Cadmium	1.26	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Calcium	3880	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6020A	Sediment	Chromium	18.7	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6020A	Sediment	Cobalt	7.69	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Copper	24	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Iron	18900	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Lead	54.8	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Magnesium	4890	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Manganese	323	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA7471B	Sediment	Mercury	0.097	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6020A	Sediment	Nickel	18.8	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Potassium	2250	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Selenium	0.3	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Silver	0.16	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Sodium	177	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Thallium	0.277	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Vanadium	30.4	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B1	SE-6-B1	2013-09-25	EPA6010C	Sediment	Zinc	150	TRUE	mg/kg	36.08805149	62.95121724	440.6499939	410865	5335491	OU 2 Upper Laucustrine CSM Unit	0.7543	-1.5248	1.1309	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Aluminum	18800	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Antimony	1.6	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6020A	Sediment	Arsenic	7.14	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Barium	231	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6020A	Sediment	Beryllium	0.666	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6020A	Sediment	Cadmium	3.59	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Calcium	6390	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6020A	Sediment	Chromium	31.3	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6020A	Sediment	Cobalt	11	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Copper	69.7	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Iron	28800	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Lead	177	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Magnesium	9360	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Manganese	836	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA7471B	Sediment	Mercury	0.657	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6020A	Sediment	Nickel	27.6	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Potassium	2760	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Silver	0.992	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Sodium	378	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Thallium	0.587	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Vanadium	46.4	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B2	SE-6-B2	2013-09-25	EPA6010C	Sediment	Zinc	424	TRUE	mg/kg	8.903634743	91.09636526	22.3400002	411273	5335725	OU 2 Upper Laucustrine CSM Unit	-0.8457	-1.8632	1.4493	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Aluminum	17000	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Antimony	1.06	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6020A	Sediment	Arsenic	9.27	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Barium	236	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6020A	Sediment	Beryllium	0.555	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6020A	Sediment	Cadmium	5.52	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Calcium	4540	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6020A	Sediment	Chromium	26.1	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6020A	Sediment	Cobalt	11.1	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Copper	43.1	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Iron	25100	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Lead	364	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Magnesium	7270	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Manganese	733	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA7471B	Sediment	Mercury	0.769	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6020A	Sediment	Nickel	26.4	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Potassium	2830	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Selenium	0.6	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Silver	0.504	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Sodium	261	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Thallium	0.809	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Vanadium	38.1	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B4	SE-6-B4	2013-09-26	EPA6010C	Sediment	Zinc	684	TRUE	mg/kg	17.2809011	82.26459836	746.039978	410686	5334129	OU 2 Upper Laucustrine CSM Unit	-1.5696	-2.4278	1.6469	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Aluminum	20300	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Antimony	1.79	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6020A	Sediment	Arsenic	11.9	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Barium	384	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6020A	Sediment	Beryllium	0.71	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6020A	Sediment	Cadmium	7.32	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Calcium	8640	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6020A	Sediment	Chromium	34.8	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6020A	Sediment	Cobalt	12	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Copper	74.3	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Iron	31700	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Lead	518	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Magnesium	11200	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Manganese	1030	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA7471B	Sediment	Mercury	1.46	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6020A	Sediment	Nickel	30.6	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Potassium	3000	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Selenium	1.2	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Silver	1.22	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Sodium	311	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Thallium	0.787	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Vanadium	47.2	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B5	SE-6-B5	2013-09-24	EPA6010C	Sediment	Zinc	1030	TRUE	mg/kg	8.243074859	91.61315058	386.6600037	411006	5333732	OU 2 Upper Laucustrine CSM Unit	-2.2758	-2.4865	1.1002	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Aluminum	18700	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Antimony	1.37	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6020A	Sediment	Arsenic	9.13	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Barium	233	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6020A	Sediment	Beryllium	0.746	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6020A	Sediment	Cadmium	2.91	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Calcium	6040	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6020A	Sediment	Chromium	34.2	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6020A	Sediment	Cobalt	12.6	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Copper	59.5	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Iron	30100	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Lead	124	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Magnesium	9320	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Manganese	843	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA7471B	Sediment	Mercury	0.405	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6020A	Sediment	Nickel	31.7	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Potassium	2750	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Silver	0.707	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Sodium	348	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Thallium	0.458	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Vanadium	47	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-B6	SE-6-B6	2013-09-24	EPA6010C	Sediment	Zinc	364	TRUE	mg/kg	4.43241075	95.56758925	-64.1800003	411293	5333336	OU 2 Upper Laucustrine CSM Unit	-0.1819	-1.5975	1.3254	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Aluminum	18200	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Antimony	2.17	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6020A	Sediment	Arsenic	10.6	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Barium	240	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6020A	Sediment	Beryllium	0.749	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6020A	Sediment	Cadmium	5.35	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Calcium	5730	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6020A	Sediment	Chromium	38.2	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6020A	Sediment	Cobalt	12.2	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Copper	70.4	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Iron	28900	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Lead	241	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Magnesium	9200	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Manganese	839	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA7471B	Sediment	Mercury	1.17	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6020A	Sediment	Nickel	30.6	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Potassium	2800	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Selenium	1.2	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Silver	1.18	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Sodium	309	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Thallium	0.752	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Vanadium	45.1	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C1	SE-6-C1	2013-09-25	EPA6010C	Sediment	Zinc	529	TRUE	mg/kg	2.145214521	97.85478548	265.2799988	411008	5336020	OU 2 Upper Laucustrine CSM Unit	-1.214	-2.3511	1.6084	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Aluminum	16950	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Antimony	1.665	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6020A	Sediment	Arsenic	7.685	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Barium	198	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6020A	Sediment	Beryllium	0.617	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6020A	Sediment	Cadmium	4.285	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Calcium	6030	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6020A	Sediment	Chromium	31.75	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6020A	Sediment	Cobalt	10.715	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Copper	69.8	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Iron	26050	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Lead	195	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Magnesium	8710	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Manganese	595	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA7471B	Sediment	Mercury	0.741	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6020A	Sediment	Nickel	27.35	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Potassium	2400	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Selenium	0.95	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Silver	1.042	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Sodium	295	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Thallium	0.649	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Vanadium	41.35	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C2	SE-6-C2	2013-09-25	EPA6010C	Sediment	Zinc	433	TRUE	mg/kg	25.14359279	74.19290949	-42.4599991	411236	5336306	OU 2 Upper Laucustrine CSM Unit	-1.0832	-2.2964	1.4539	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Aluminum	20000	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Antimony	1.53	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6020A	Sediment	Arsenic	12.6	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Barium	343	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6020A	Sediment	Beryllium	0.713	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6020A	Sediment	Cadmium	8.01	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Calcium	5690	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6020A	Sediment	Chromium	33.2	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6020A	Sediment	Cobalt	12.1	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Copper	64.9	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Iron	30700	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Lead	525	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Magnesium	8960	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Manganese	1420	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA7471B	Sediment	Mercury	1.19	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6020A	Sediment	Nickel	29.9	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Potassium	3060	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Selenium	1	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Silver	0.969	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Sodium	298	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Thallium	0.891	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Vanadium	45.1	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C3	SE-6-C3	2013-09-24	EPA6010C	Sediment	Zinc	938	TRUE	mg/kg	12.05647749	87.09085908	660.6599731	410709	5333769	OU 2 Upper Laucustrine CSM Unit	-2.0775	-2.2643	1.614	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Aluminum	15900	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Antimony	1.74	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6020A	Sediment	Arsenic	13.2	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Barium	300	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6020A	Sediment	Beryllium	0.647	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6020A	Sediment	Cadmium	6.67	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Calcium	14200	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6020A	Sediment	Chromium	34.1	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6020A	Sediment	Cobalt	10.6	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Copper	67	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Iron	26100	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Lead	252	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Magnesium	12700	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Manganese	469	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA7471B	Sediment	Mercury	1.09	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6020A	Sediment	Nickel	27.1	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Potassium	2260	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Selenium	1.1	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Silver	0.84	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Sodium	273	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Thallium	0.58	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Vanadium	39.5	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-C4	SE-6-C4	2013-09-24	EPA6010C	Sediment	Zinc	687	TRUE	mg/kg	24.69063627	75.22167008	225.7100067	410959	5333350	OU 2 Upper Laucustrine CSM Unit	-1.9782	-2.8613	0.1064	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Aluminum	18300	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Antimony	1.38	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6020A	Sediment	Arsenic	9	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Barium	223	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6020A	Sediment	Beryllium	0.68	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6020A	Sediment	Cadmium	2.65	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Calcium	5510	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6020A	Sediment	Chromium	32.8	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6020A	Sediment	Cobalt	12.1	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Copper	62.7	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Iron	29100	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Lead	111	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Magnesium	8980	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Manganese	982	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA7471B	Sediment	Mercury	0.313	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6020A	Sediment	Nickel	30.4	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Potassium	2800	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Silver	0.795	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Sodium	320	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Thallium	0.629	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Vanadium	46.3	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6-R3	SE-6-R3	2013-09-25	EPA6010C	Sediment	Zinc	343	TRUE	mg/kg	8.271545498	91.7284545	276.7399902	410903	5336566	OU 2 Upper Laucustrine CSM Unit	-0.0444	-1.3861	1.3441	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Aluminum	15400	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Antimony	1.55	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6020A	Sediment	Arsenic	8.99	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Barium	220	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6020A	Sediment	Beryllium	0.602	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6020A	Sediment	Cadmium	5.86	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Calcium	6850	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6020A	Sediment	Chromium	32.8	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6020A	Sediment	Cobalt	10.1	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Copper	61.6	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Iron	25100	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Lead	225	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Magnesium	8560	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Manganese	526	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA7471B	Sediment	Mercury	1.15	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6020A	Sediment	Nickel	26.1	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Potassium	2140	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Selenium	1.1	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Silver	0.876	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Sodium	238	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Thallium	0.551	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Vanadium	40.2	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C1	SE-6B-C1	2013-09-24	EPA6010C	Sediment	Zinc	531	TRUE	mg/kg	25.1031967	74.8968033	162.8800049	409907	5332428	OU 2 Upper Laucustrine CSM Unit	-1.6127	-2.7196	1.218	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Aluminum	20700	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Antimony	0.86	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6020A	Sediment	Arsenic	7.64	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Barium	241	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6020A	Sediment	Beryllium	0.724	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6020A	Sediment	Cadmium	1.66	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Calcium	6330	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6020A	Sediment	Chromium	36.6	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6020A	Sediment	Cobalt	12.9	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6020A	Sediment	Copper	55.9	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Iron	33200	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Lead	86.6	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Magnesium	11100	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Manganese	770	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA7471B	Sediment	Mercury	0.193	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6020A	Sediment	Nickel	34	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Potassium	2940	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Silver	0.605	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Sodium	361	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Thallium	0.426	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Vanadium	53.3	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2
2013 Phase 2 Sediment Study	6B-C2	SE-6B-C2	2013-09-13	EPA6010C	Sediment	Zinc	308	TRUE	mg/kg	0.722752241	99.25797437	675.6699829	407027	5328228	OU 2 Upper Laucustrine CSM Unit	0.6328	-1.1429	1.1242	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Aluminum	22000	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Antimony	0.831	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6020A	Sediment	Arsenic	8.58	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Barium	253	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6020A	Sediment	Beryllium	0.711	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6020A	Sediment	Cadmium	1.64	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Calcium	6410	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6020A	Sediment	Chromium	38.6	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6020A	Sediment	Cobalt	13.6	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6020A	Sediment	Copper	54.3	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Iron	34900	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Lead	81.6	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Magnesium	11900	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Manganese	1030	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA7471B	Sediment	Mercury	0.159	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6020A	Sediment	Nickel	35.6	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Potassium	3140	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Silver	0.537	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Sodium	371	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Thallium	0.409	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Vanadium	56.8	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C3	SE-6B-C3	2013-09-16	EPA6010C	Sediment	Zinc	303	TRUE	mg/kg	0.599885736	99.3144163	432.1099854	407582	5324288	OU 2 Middle Laucustrine CSM Unit	0.8683	-0.9007	1.0632	3
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Aluminum	22500	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Antimony	0.905	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6020A	Sediment	Arsenic	9.43	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Barium	260	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6020A	Sediment	Beryllium	0.795	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6020A	Sediment	Cadmium	2.02	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Calcium	5850	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6020A	Sediment	Chromium	40.9	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6020A	Sediment	Cobalt	14.2	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6020A	Sediment	Copper	58.6	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Iron	35000	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Lead	93.8	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Magnesium	11600	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Manganese	1310	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA7471B	Sediment	Mercury	0.23	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6020A	Sediment	Nickel	37.5	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Potassium	3280	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Silver	0.671	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Sodium	388	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Thallium	0.555	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Vanadium	57.1	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	6B-C4	SE-6B-C4	2013-09-16	EPA6010C	Sediment	Zinc	318	TRUE	mg/kg	1.055146327	98.94485367	-126.6800003	400539	5322330	OU 2 Middle Laucustrine CSM Unit	0.6854	-0.9895	1.3182	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Aluminum	19100	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Antimony	0.98	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6020A	Sediment	Arsenic	9.73	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Barium	221	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6020A	Sediment	Beryllium	0.718	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6020A	Sediment	Cadmium	2.59	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Calcium	4780	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6020A	Sediment	Chromium	39.1	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6020A	Sediment	Cobalt	13.5	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6020A	Sediment	Copper	62.2	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Iron	30100	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Lead	112	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Magnesium	9650	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Manganese	1060	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA7471B	Sediment	Mercury	0.408	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6020A	Sediment	Nickel	35.2	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Potassium	2810	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Silver	0.716	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Sodium	300	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Thallium	0.649	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Vanadium	47.2	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B1	SE-7-B1	2013-09-13	EPA6010C	Sediment	Zinc	329	TRUE	mg/kg	1.996871262	98.00312874	352.7000122	397452	5315603	OU 2 Middle Laucustrine CSM Unit	0.1435	-1.4816	1.5523	2
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Aluminum	14600	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Antimony	0.327	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6020A	Sediment	Arsenic	5.96	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Barium	145	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6020A	Sediment	Beryllium	0.453	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6020A	Sediment	Cadmium	1.19	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Calcium	3400	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6020A	Sediment	Chromium	22.7	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6020A	Sediment	Cobalt	8.34	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6020A	Sediment	Copper	26.2	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Iron	22400	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Lead	47.9	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Magnesium	6550	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Manganese	663	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA7471B	Sediment	Mercury	0.102	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6020A	Sediment	Nickel	21.2	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Potassium	2150	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Selenium	0.4	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Silver	0.256	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Sodium	192	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Thallium	0.452	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Vanadium	35.4	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B2	SE-7-B2	2013-09-13	EPA6010C	Sediment	Zinc	185	TRUE	mg/kg	39.69391709	60.15110422	99.0199966	398078	5315204	OU 2 Middle Laucustrine CSM Unit	1.0316	-1.0671	1.2246	3
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Aluminum	21700	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Antimony	0.801	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6020A	Sediment	Arsenic	9.79	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Barium	234	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6020A	Sediment	Beryllium	0.709	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6020A	Sediment	Cadmium	2.69	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Calcium	5200	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6020A	Sediment	Chromium	39.3	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6020A	Sediment	Cobalt	13.8	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6020A	Sediment	Copper	56.3	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Iron	33700	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Lead	117	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Magnesium	10400	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Manganese	1100	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA7471B	Sediment	Mercury	0.415	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6020A	Sediment	Nickel	35.4	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Potassium	3120	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Silver	0.644	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Sodium	300	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Thallium	0.751	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Vanadium	50.4	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B3	SE-7-B3	2013-09-13	EPA6010C	Sediment	Zinc	351	TRUE	mg/kg	3.011740684	96.98825932	-347.9599915	398694	5315139	OU 2 Middle Laucustrine CSM Unit	0.2197	-1.4966	1.4773	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Aluminum	22700	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Antimony	1.03	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6020A	Sediment	Arsenic	10.4	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Barium	273	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6020A	Sediment	Beryllium	0.741	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6020A	Sediment	Cadmium	2.29	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Calcium	5740	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6020A	Sediment	Chromium	41.1	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6020A	Sediment	Cobalt	15	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6020A	Sediment	Copper	66.7	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Iron	35600	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Lead	104	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Magnesium	11400	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Manganese	1260	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA7471B	Sediment	Mercury	0.225	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6020A	Sediment	Nickel	38.4	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Potassium	3230	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Selenium	1	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Silver	0.645	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Sodium	341	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Thallium	0.579	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Vanadium	55.4	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B4	SE-7-B4	2013-09-13	EPA6010C	Sediment	Zinc	366	TRUE	mg/kg	2.5141098	97.4858902	375.1000061	398630	5312043	OU 2 Middle Laucustrine CSM Unit	0.4823	-1.0318	1.2913	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Aluminum	16600	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Antimony	0.666	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6020A	Sediment	Arsenic	6.57	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Barium	182	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6020A	Sediment	Beryllium	0.495	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6020A	Sediment	Cadmium	1.21	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Calcium	5310	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6020A	Sediment	Chromium	26.3	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6020A	Sediment	Cobalt	9.49	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6020A	Sediment	Copper	37.6	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Iron	27500	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Lead	64.9	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Magnesium	8570	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Manganese	770	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA7471B	Sediment	Mercury	0.152	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6020A	Sediment	Nickel	24.3	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Potassium	2430	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Selenium	0.5	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Silver	0.472	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Sodium	248	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Thallium	0.393	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Vanadium	43.1	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B5	SE-7-B5	2013-09-13	EPA6010C	Sediment	Zinc	225	TRUE	mg/kg	33.23368211	66.76631789	-113.4800034	398830	5310722	OU 2 Middle Laucustrine CSM Unit	0.7474	-1.0192	0.9242	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Aluminum	23900	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Antimony	1.11	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6020A	Sediment	Arsenic	10.3	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Barium	269	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6020A	Sediment	Beryllium	0.762	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6020A	Sediment	Cadmium	3.21	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Calcium	5720	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6020A	Sediment	Chromium	41.7	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6020A	Sediment	Cobalt	14.3	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6020A	Sediment	Copper	68.3	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Iron	36700	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Lead	163	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Magnesium	11800	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Manganese	1160	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA7471B	Sediment	Mercury	0.526	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6020A	Sediment	Nickel	36.8	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Potassium	3440	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Selenium	1	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Silver	0.859	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Sodium	355	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Thallium	0.746	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Vanadium	55.9	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-B6	SE-7-B6	2013-09-13	EPA6010C	Sediment	Zinc	458	TRUE	mg/kg	2.648483052	97.35151695	253.7599945	398724	5311550	OU 2 Middle Laucustrine CSM Unit	-0.1391	-1.6124	1.5036	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Aluminum	22800	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Antimony	0.99	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6020A	Sediment	Arsenic	9.7	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Barium	261	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6020A	Sediment	Beryllium	0.739	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6020A	Sediment	Cadmium	2.13	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Calcium	5480	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6020A	Sediment	Chromium	38.2	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6020A	Sediment	Cobalt	13.3	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6020A	Sediment	Copper	59.6	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Iron	35500	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Lead	110	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Magnesium	11400	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Manganese	1200	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA7471B	Sediment	Mercury	0.288	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6020A	Sediment	Nickel	35.1	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Potassium	3320	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Silver	0.776	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Sodium	358	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Thallium	0.585	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Vanadium	56.5	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C1	SE-7-C1	2013-09-16	EPA6010C	Sediment	Zinc	353	TRUE	mg/kg	1.783075559	98.21692444	-433.480011	396293	5319468	OU 2 Middle Laucustrine CSM Unit	0.4232	-1.1879	1.3213	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Aluminum	16000	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Antimony	0.435	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6020A	Sediment	Arsenic	6.75	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Barium	177	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6020A	Sediment	Beryllium	0.515	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6020A	Sediment	Cadmium	2.22	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Calcium	3550	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6020A	Sediment	Chromium	28	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6020A	Sediment	Cobalt	9.97	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6020A	Sediment	Copper	35	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Iron	24700	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Lead	112	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Magnesium	7680	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Manganese	887	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA7471B	Sediment	Mercury	0.343	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6020A	Sediment	Nickel	25.8	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Potassium	2240	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Selenium	0.6	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Silver	0.449	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Sodium	205	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Thallium	0.671	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Vanadium	38.2	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C2	SE-7-C2	2013-09-16	EPA6010C	Sediment	Zinc	331	TRUE	mg/kg	41.12177868	57.40272865	-1319.689941	397270	5320065	OU 2 Middle Laucustrine CSM Unit	-0.0326	-1.6356	1.6297	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Aluminum	23900	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Antimony	1.09	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6020A	Sediment	Arsenic	13.7	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Barium	312	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6020A	Sediment	Beryllium	0.849	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6020A	Sediment	Cadmium	3.27	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Calcium	5780	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6020A	Sediment	Chromium	41.5	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6020A	Sediment	Cobalt	13.8	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6020A	Sediment	Copper	63.1	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Iron	40100	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6020A	Sediment	Lead	140	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Magnesium	11700	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Manganese	2000	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA7471B	Sediment	Mercury	0.409	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6020A	Sediment	Nickel	34.7	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Potassium	3870	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Selenium	0.6	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Silver	0.827	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Sodium	446	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6010C	Sediment	Thallium	0.805	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6020A	Sediment	Vanadium	47.4	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C3	SE-7-C3	2013-09-12	EPA6020A	Sediment	Zinc	401	TRUE	mg/kg	1.695076659	98.1525569	442.1799927	399051	5306929	OU 2 Middle Laucustrine CSM Unit	0.031	-1.0031	1.33	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Aluminum	21800	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Antimony	1.1	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6020A	Sediment	Arsenic	9.2	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Barium	256	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6020A	Sediment	Beryllium	0.752	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6020A	Sediment	Cadmium	2.83	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Calcium	5740	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6020A	Sediment	Chromium	34.3	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6020A	Sediment	Cobalt	12.1	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6020A	Sediment	Copper	54.5	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Iron	35900	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6020A	Sediment	Lead	108	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Magnesium	10400	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Manganese	981	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA7471B	Sediment	Mercury	0.303	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6020A	Sediment	Nickel	28.9	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Potassium	3280	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Selenium	0.5	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Silver	0.784	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Sodium	278	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6010C	Sediment	Thallium	0.747	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6020A	Sediment	Vanadium	40.4	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7-C4	SE-7-C4	2013-09-12	EPA6020A	Sediment	Zinc	398	TRUE	mg/kg	3.992075285	95.80980684	-13.25	399383	5307269	OU 2 Middle Laucustrine CSM Unit	0.014	-1.3587	1.245	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Aluminum	26000	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Antimony	1.02	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6020A	Sediment	Arsenic	9.29	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Barium	260	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6020A	Sediment	Beryllium	0.799	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6020A	Sediment	Cadmium	3.73	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Calcium	5630	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6020A	Sediment	Chromium	35.6	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6020A	Sediment	Cobalt	13.1	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6020A	Sediment	Copper	57.3	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Iron	35500	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6020A	Sediment	Lead	151	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Magnesium	11100	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Manganese	862	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA7471B	Sediment	Mercury	0.535	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6020A	Sediment	Nickel	31.2	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Potassium	3580	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Silver	0.811	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Sodium	310	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Thallium	0.75	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Vanadium	54.1	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C1	SE-7B-C1	2013-09-16	EPA6010C	Sediment	Zinc	539	TRUE	mg/kg	0.838175064	99.15230022	-58.9099998	398694	5301339	OU 2 Middle Laucustrine CSM Unit	-0.2782	-1.9538	1.5086	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Aluminum	26800	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Antimony	1.28	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6020A	Sediment	Arsenic	12	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Barium	345	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6020A	Sediment	Beryllium	1.03	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6020A	Sediment	Cadmium	3.79	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Calcium	6230	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6020A	Sediment	Chromium	42.1	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6020A	Sediment	Cobalt	15.5	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6020A	Sediment	Copper	67.6	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Iron	42900	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6020A	Sediment	Lead	139	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Magnesium	12100	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Manganese	1730	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA7471B	Sediment	Mercury	0.288	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6020A	Sediment	Nickel	37.5	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Potassium	3900	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Selenium	0.7	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Silver	0.828	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Sodium	409	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6010C	Sediment	Thallium	0.835	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6020A	Sediment	Vanadium	52.7	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C2	SE-7B-C2	2013-09-12	EPA6020A	Sediment	Zinc	555	TRUE	mg/kg	1.173376492	98.72547036	172.9700012	392535	5299893	OU 2 Middle Laucustrine CSM Unit	0.0079	-1.0407	1.4574	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Aluminum	27400	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Antimony	1.15	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6020A	Sediment	Arsenic	15.2	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Barium	333	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6020A	Sediment	Beryllium	0.973	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6020A	Sediment	Cadmium	5.19	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Calcium	5830	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6020A	Sediment	Chromium	39.3	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6020A	Sediment	Cobalt	14.5	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6020A	Sediment	Copper	67.3	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Iron	40400	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6020A	Sediment	Lead	205	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Magnesium	11100	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Manganese	1920	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA7471B	Sediment	Mercury	0.59	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6020A	Sediment	Nickel	33.1	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Potassium	4030	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Silver	0.948	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Sodium	346	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6010C	Sediment	Thallium	1.04	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6020A	Sediment	Vanadium	48.3	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C3	SE-7B-C3	2013-09-12	EPA6020A	Sediment	Zinc	690	TRUE	mg/kg	3.620449572	95.94191367	385.8699951	386079	5303883	OU 2 Middle Laucustrine CSM Unit	-0.63	-1.5052	1.5248	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Aluminum	24500	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Antimony	1	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6020A	Sediment	Arsenic	9.88	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Barium	275	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6020A	Sediment	Beryllium	0.736	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6020A	Sediment	Cadmium	2.32	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Calcium	5250	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6020A	Sediment	Chromium	31.1	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6020A	Sediment	Cobalt	12.3	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6020A	Sediment	Copper	50.7	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Iron	36000	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Lead	107	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Magnesium	10800	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Manganese	1470	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA7471B	Sediment	Mercury	0.205	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6020A	Sediment	Nickel	29.1	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Potassium	3440	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Silver	0.647	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Sodium	310	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Thallium	0.542	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Vanadium	54.6	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	7B-C4	SE-7B-C4	2013-09-16	EPA6010C	Sediment	Zinc	454	TRUE	mg/kg	1.434238633	98.56576137	-573.6400146	397023	5298005	OU 2 Middle Laucustrine CSM Unit	0.3151	-1.0224	1.2602	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Aluminum	28100	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Antimony	1.55	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6020A	Sediment	Arsenic	12.9	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Barium	293	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6020A	Sediment	Beryllium	1	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6020A	Sediment	Cadmium	6.66	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Calcium	6000	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6020A	Sediment	Chromium	35	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6020A	Sediment	Cobalt	14.1	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Copper	69.3	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Iron	35200	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Lead	203	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Magnesium	10300	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Manganese	1490	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA7471B	Sediment	Mercury	0.785	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6020A	Sediment	Nickel	31.2	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Potassium	3950	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Selenium	1	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Silver	0.895	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Sodium	286	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Thallium	0.885	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Vanadium	48.7	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B1	SE-8-B1	2013-09-20	EPA6010C	Sediment	Zinc	769	TRUE	mg/kg	4.672192916	95.32780708	-247.8600006	363041	5310496	OU 2 Lower Laucustrine CSM Unit	-0.9185	-2.0408	1.6587	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Aluminum	28700	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Antimony	1.24	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6020A	Sediment	Arsenic	16.2	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Barium	305	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6020A	Sediment	Beryllium	1.15	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6020A	Sediment	Cadmium	6.68	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Calcium	5380	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6020A	Sediment	Chromium	43.6	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6020A	Sediment	Cobalt	17.3	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6020A	Sediment	Copper	81.5	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Iron	36700	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Lead	208	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Magnesium	10600	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Manganese	1460	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA7471B	Sediment	Mercury	0.856	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6020A	Sediment	Nickel	38.2	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Potassium	3940	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Selenium	1.6	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Silver	0.962	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Sodium	277	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Thallium	1.17	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Vanadium	54.4	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B2	SE-8-B2	2013-09-19	EPA6010C	Sediment	Zinc	790	TRUE	mg/kg	1.982601659	98.01739834	-874.4699707	362207	5311915	OU 2 Lower Laucustrine CSM Unit	-0.7262	-2.0918	1.8466	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Aluminum	28400	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Antimony	1.39	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6020A	Sediment	Arsenic	17	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Barium	317	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6020A	Sediment	Beryllium	1.2	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6020A	Sediment	Cadmium	8.43	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Calcium	6190	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6020A	Sediment	Chromium	44.6	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6020A	Sediment	Cobalt	17.4	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6020A	Sediment	Copper	79.9	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Iron	37400	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Lead	252	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Magnesium	11200	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Manganese	1410	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA7471B	Sediment	Mercury	0.992	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6020A	Sediment	Nickel	38.8	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Potassium	4030	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Selenium	1.7	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Silver	0.96	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Sodium	283	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Thallium	1.06	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Vanadium	54.5	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B3	SE-8-B3	2013-09-19	EPA6010C	Sediment	Zinc	953	TRUE	mg/kg	1.841104663	98.15889534	-647.5	362315	5312467	OU 2 Lower Laucustrine CSM Unit	-1.0198	-2.2984	1.7692	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Aluminum	27000	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Antimony	1.43	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6020A	Sediment	Arsenic	18	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Barium	333	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6020A	Sediment	Beryllium	1.05	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6020A	Sediment	Cadmium	9.06	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Calcium	6730	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6020A	Sediment	Chromium	41	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6020A	Sediment	Cobalt	16.8	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6020A	Sediment	Copper	74	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Iron	36900	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Lead	284	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Magnesium	11400	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Manganese	1760	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA7471B	Sediment	Mercury	0.85	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6020A	Sediment	Nickel	37.3	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Potassium	3960	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Selenium	1.4	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Silver	0.895	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Sodium	270	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Thallium	1.13	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Vanadium	53.1	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B4	SE-8-B4	2013-09-19	EPA6010C	Sediment	Zinc	1010	TRUE	mg/kg	2.445159992	97.50452807	267.3699951	362435	5313452	OU 2 Lower Laucustrine CSM Unit	-1.1826	-2.1619	1.5595	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Aluminum	17900	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Antimony	0.631	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6020A	Sediment	Arsenic	7.64	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Barium	161	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6020A	Sediment	Beryllium	0.712	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6020A	Sediment	Cadmium	1.54	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Calcium	6130	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6020A	Sediment	Chromium	17.2	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6020A	Sediment	Cobalt	8.3	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Copper	28	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Iron	24300	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Lead	57.5	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Magnesium	7680	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Manganese	1160	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA7471B	Sediment	Mercury	0.103	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6020A	Sediment	Nickel	16.1	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Potassium	2840	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Selenium	0.5	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Silver	0.26	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Sodium	196	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Thallium	0.351	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Vanadium	34.2	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B5	SE-8-B5	2013-09-20	EPA6010C	Sediment	Zinc	269	TRUE	mg/kg	45.24882025	39.62891463	-137.5899963	364228	5309157	OU 2 Lower Laucustrine CSM Unit	0.618	-0.9949	0.7691	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Aluminum	25600	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Antimony	2.24	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6020A	Sediment	Arsenic	16.5	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Barium	347	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6020A	Sediment	Beryllium	1.01	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6020A	Sediment	Cadmium	13.1	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Calcium	8270	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6020A	Sediment	Chromium	39.2	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6020A	Sediment	Cobalt	15.9	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Copper	66.7	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Iron	32300	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Lead	412	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Magnesium	11900	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Manganese	1050	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA7471B	Sediment	Mercury	1.13	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6020A	Sediment	Nickel	34.6	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Potassium	3690	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Selenium	1.2	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Silver	0.972	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Sodium	268	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Thallium	1.02	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Vanadium	45.6	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-B6	SE-8-B6	2013-09-20	EPA6010C	Sediment	Zinc	1210	TRUE	mg/kg	1.686842628	98.23377654	207.4600067	364197	5309595	OU 2 Lower Laucustrine CSM Unit	-1.8739	-2.811	1.3402	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Aluminum	29050	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Antimony	1.675	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6020A	Sediment	Arsenic	13.5	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Barium	305	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6020A	Sediment	Beryllium	1.115	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6020A	Sediment	Cadmium	7.995	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Calcium	5710	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6020A	Sediment	Chromium	40.3	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6020A	Sediment	Cobalt	15.6	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Copper	83.65	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Iron	37550	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Lead	209.5	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Magnesium	10620	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Manganese	1495	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA7471B	Sediment	Mercury	0.927	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6020A	Sediment	Nickel	35.1	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Potassium	4015	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Selenium	1.25	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Silver	1.095	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Sodium	325.5	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Thallium	1.155	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Vanadium	52.85	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C1	SE-8-C1	2013-09-21	EPA6010C	Sediment	Zinc	795.5	TRUE	mg/kg	2.902723368	97.09727663	120.3199997	366218	5308848	OU 2 Lower Laucustrine CSM Unit	-0.9456	-2.0916	1.8823	2
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Aluminum	9150	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Antimony	0.192	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6020A	Sediment	Arsenic	5.6	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Barium	76.8	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6020A	Sediment	Beryllium	0.298	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6020A	Sediment	Cadmium	0.502	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Calcium	3400	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6020A	Sediment	Chromium	10.9	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6020A	Sediment	Cobalt	4.74	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Copper	12.2	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Iron	14700	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Lead	13.8	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Magnesium	5330	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Manganese	356	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA7471B	Sediment	Mercury	0.022	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6020A	Sediment	Nickel	10.3	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Potassium	1680	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Selenium	0.2	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Silver	0.082	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Sodium	117	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Thallium	0.203	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Vanadium	19.3	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C2	SE-8-C2	2013-09-20	EPA6010C	Sediment	Zinc	95.6	TRUE	mg/kg	74.04371585	25.95628415	992.1599731	363849	5313282	OU 2 Lower Laucustrine CSM Unit	1.9355	-0.7343	0.0462	3
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Aluminum	29500	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Antimony	1.2	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6020A	Sediment	Arsenic	16.7	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Barium	328	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6020A	Sediment	Beryllium	1.1	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6020A	Sediment	Cadmium	6.19	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Calcium	5640	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6020A	Sediment	Chromium	40.4	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6020A	Sediment	Cobalt	17	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6020A	Sediment	Copper	80.4	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Iron	39400	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Lead	198	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Magnesium	10800	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Manganese	2510	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA7471B	Sediment	Mercury	0.582	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6020A	Sediment	Nickel	38.1	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Potassium	4040	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Selenium	1.5	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Silver	0.933	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Sodium	291	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Thallium	1.23	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Vanadium	56.5	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C3	SE-8-C3	2013-09-18	EPA6010C	Sediment	Zinc	719	TRUE	mg/kg	2.734452122	97.23593287	816.2999878	360369	5313738	OU 2 Lower Laucustrine CSM Unit	-0.5412	-1.5493	1.7444	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Aluminum	27000	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Antimony	1.37	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6020A	Sediment	Arsenic	16.6	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Barium	291	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6020A	Sediment	Beryllium	1	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6020A	Sediment	Cadmium	8.39	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Calcium	5950	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6020A	Sediment	Chromium	38.4	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6020A	Sediment	Cobalt	15.4	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6020A	Sediment	Copper	71.1	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Iron	34800	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Lead	280	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Magnesium	10700	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Manganese	1410	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA7471B	Sediment	Mercury	1.16	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6020A	Sediment	Nickel	33.4	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Potassium	3850	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Selenium	1.5	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Silver	0.941	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Sodium	269	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Thallium	1.03	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Vanadium	51.7	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8-C4	SE-8-C4	2013-09-19	EPA6010C	Sediment	Zinc	993	TRUE	mg/kg	6.536346976	93.46365302	-198.8600006	361822	5313108	OU 2 Lower Laucustrine CSM Unit	-1.256	-2.4155	1.6868	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Aluminum	27800	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Antimony	1.04	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6020A	Sediment	Arsenic	13.9	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Barium	322	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6020A	Sediment	Beryllium	0.975	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6020A	Sediment	Cadmium	4.41	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Calcium	5110	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6020A	Sediment	Chromium	35.6	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6020A	Sediment	Cobalt	14.8	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6020A	Sediment	Copper	67.6	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Iron	36900	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Lead	134	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Magnesium	10100	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Manganese	2070	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA7471B	Sediment	Mercury	0.398	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6020A	Sediment	Nickel	33.5	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Potassium	3660	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Selenium	1.2	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Silver	0.858	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Sodium	327	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Thallium	0.97	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Vanadium	54.4	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C1	SE-8B-C1	2013-09-18	EPA6010C	Sediment	Zinc	580	TRUE	mg/kg	2.421724592	97.57827541	-430.3099976	359197	5312371	OU 2 Lower Laucustrine CSM Unit	-0.2092	-1.2736	1.5977	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Aluminum	17850	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Antimony	0.4715	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6020A	Sediment	Arsenic	9.415	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Barium	157.5	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6020A	Sediment	Beryllium	0.538	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6020A	Sediment	Cadmium	2.955	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Calcium	3510	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6020A	Sediment	Chromium	19.75	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6020A	Sediment	Cobalt	8.1	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6020A	Sediment	Copper	32.6	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Iron	23250	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Lead	95.2	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Magnesium	8125	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Manganese	812.5	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA7471B	Sediment	Mercury	0.4135	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6020A	Sediment	Nickel	17.3	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Potassium	2675	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Selenium	0.65	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Silver	0.413	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Sodium	207.5	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Thallium	0.548	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Vanadium	32.8	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C2	SE-8B-C2	2013-09-18	EPA6010C	Sediment	Zinc	413.5	TRUE	mg/kg	53.10795538	46.82816569	-514.5499878	355225	5311304	OU 2 Lower Laucustrine CSM Unit	-0.337	-2.0303	1.2814	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Aluminum	25500	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Antimony	1.11	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6020A	Sediment	Arsenic	15.2	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Barium	289	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6020A	Sediment	Beryllium	0.972	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6020A	Sediment	Cadmium	9.29	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Calcium	5690	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6020A	Sediment	Chromium	35.6	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6020A	Sediment	Cobalt	14.6	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6020A	Sediment	Copper	69.5	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Iron	34200	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Lead	244	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Magnesium	10200	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Manganese	1420	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA7471B	Sediment	Mercury	1.12	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6020A	Sediment	Nickel	31.8	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Potassium	3660	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Selenium	1.3	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Silver	0.838	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Sodium	266	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Thallium	0.972	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Vanadium	49.9	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C3	SE-8B-C3	2013-09-18	EPA6010C	Sediment	Zinc	1030	TRUE	mg/kg	5.042102059	94.95789794	192.3899994	353797	5311827	OU 2 Lower Laucustrine CSM Unit	-1.348	-2.3841	1.72	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Aluminum	26900	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Antimony	1.15	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6020A	Sediment	Arsenic	14.3	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Barium	316	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6020A	Sediment	Beryllium	0.998	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6020A	Sediment	Cadmium	6.32	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Calcium	5200	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6020A	Sediment	Chromium	35	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6020A	Sediment	Cobalt	14.9	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6020A	Sediment	Copper	70.8	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Iron	35700	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Lead	163	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Magnesium	10100	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Manganese	2110	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA7471B	Sediment	Mercury	0.589	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6020A	Sediment	Nickel	33.7	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Potassium	3670	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Selenium	1.3	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Silver	0.854	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Sodium	277	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Thallium	1.02	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Vanadium	53.5	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	8B-C4	SE-8B-C4	2013-09-18	EPA6010C	Sediment	Zinc	729	TRUE	mg/kg	12.50381524	87.49618476	-33.3400002	352174	5312039	OU 2 Lower Laucustrine CSM Unit	-0.6647	-1.6666	1.7007	2
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Aluminum	2940	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Antimony	0.044	FALSE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6020A	Sediment	Arsenic	0.51	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Barium	31.3	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6020A	Sediment	Beryllium	0.119	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6020A	Sediment	Cadmium	0.101	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Calcium	1530	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6020A	Sediment	Chromium	5.63	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6020A	Sediment	Cobalt	1.76	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6020A	Sediment	Copper	3.33	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Iron	5750	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6020A	Sediment	Lead	3.56	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Magnesium	2060	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Manganese	127	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6020A	Sediment	Nickel	5.37	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Potassium	554	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Selenium	0.2	FALSE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Silver	0.053	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Sodium	59.9	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6010C	Sediment	Thallium	0.085	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6020A	Sediment	Vanadium	8.26	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-1	SE-G-1	2013-09-05	EPA6020A	Sediment	Zinc	23.5	TRUE	mg/kg	99.71901656	0.280983442		448664	5450379	LCR above Trail	2.9534	0.295	0.5719	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Aluminum	3270	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Antimony	0.031	FALSE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6020A	Sediment	Arsenic	0.66	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Barium	24.9	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6020A	Sediment	Beryllium	0.142	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6020A	Sediment	Cadmium	0.107	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Calcium	1650	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6020A	Sediment	Chromium	4.85	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6020A	Sediment	Cobalt	1.77	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6020A	Sediment	Copper	4.55	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Iron	7360	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6020A	Sediment	Lead	4.66	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Magnesium	2120	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Manganese	145	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6020A	Sediment	Nickel	4.65	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Potassium	488	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Selenium	0.2	FALSE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Silver	0.053	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Sodium	77.4	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6010C	Sediment	Thallium	0.055	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6020A	Sediment	Vanadium	10.6	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-2	SE-G-2	2013-09-05	EPA6020A	Sediment	Zinc	29.7	TRUE	mg/kg	94.12233513	0.268977884		448711	5450339	LCR above Trail	2.8032	0.4037	0.6787	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Aluminum	2960	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Antimony	0.012	FALSE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6020A	Sediment	Arsenic	0.68	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Barium	25.1	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6020A	Sediment	Beryllium	0.111	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6020A	Sediment	Cadmium	0.102	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Calcium	1650	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6020A	Sediment	Chromium	17	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6020A	Sediment	Cobalt	2.46	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6020A	Sediment	Copper	3.93	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Iron	6310	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6020A	Sediment	Lead	4.67	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Magnesium	2070	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Manganese	109	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6020A	Sediment	Nickel	19.6	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Potassium	573	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Selenium	0.2	FALSE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Silver	0.034	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Sodium	53.8	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6010C	Sediment	Thallium	0.037	FALSE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6020A	Sediment	Vanadium	9.74	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-3	SE-G-3	2013-09-06	EPA6020A	Sediment	Zinc	30.6	TRUE	mg/kg	97.08540672	0.182796791		448597	5450270	LCR above Trail	3.7035	-0.063	1.1078	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Aluminum	2990	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Antimony	0.008	FALSE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6020A	Sediment	Arsenic	0.52	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Barium	24.1	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6020A	Sediment	Beryllium	0.119	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6020A	Sediment	Cadmium	0.093	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Calcium	1540	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6020A	Sediment	Chromium	5.46	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6020A	Sediment	Cobalt	1.59	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6020A	Sediment	Copper	4.04	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Iron	6340	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6020A	Sediment	Lead	4.77	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Magnesium	1880	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Manganese	92.5	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6020A	Sediment	Nickel	4.94	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Potassium	552	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Selenium	0.2	FALSE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Silver	0.039	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Sodium	57.2	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6010C	Sediment	Thallium	0.04	FALSE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6020A	Sediment	Vanadium	8.35	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	G-4	SE-G-4	2013-09-06	EPA6020A	Sediment	Zinc	27.2	TRUE	mg/kg	93.13567839	0.110552764		448724	5450204	LCR above Trail	2.7891	0.0977	0.7148	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Aluminum	11700	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Antimony	0.041	FALSE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6020A	Sediment	Arsenic	3.8	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Barium	124	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6020A	Sediment	Beryllium	0.769	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6020A	Sediment	Cadmium	0.33	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Calcium	6360	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6020A	Sediment	Chromium	22.8	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6020A	Sediment	Cobalt	11	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6020A	Sediment	Copper	22.9	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Iron	23000	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6020A	Sediment	Lead	13.5	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Magnesium	5980	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Manganese	244	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA7471B	Sediment	Mercury	0.015	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6020A	Sediment	Nickel	23.6	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Potassium	2030	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Selenium	0.5	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Silver	0.313	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Sodium	249	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6010C	Sediment	Thallium	0.196	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6020A	Sediment	Vanadium	34.4	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-1	SE-LAL-1	2013-09-08	EPA6020A	Sediment	Zinc	67.7	TRUE	mg/kg	55.20864605	43.64054838		418638	5492298	LCR above Trail	3.0046	-0.0482	0.603	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Aluminum	7360	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Antimony	0.178	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6020A	Sediment	Arsenic	0.65	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Barium	108	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6020A	Sediment	Beryllium	0.742	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6020A	Sediment	Cadmium	0.39	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Calcium	8190	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6020A	Sediment	Chromium	12.6	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6020A	Sediment	Cobalt	4.46	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6020A	Sediment	Copper	11.3	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Iron	20000	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6020A	Sediment	Lead	15.5	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Magnesium	4670	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Manganese	520	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA7471B	Sediment	Mercury	0.029	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6020A	Sediment	Nickel	8.8	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Potassium	1220	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Selenium	0.4	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Silver	0.347	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Sodium	216	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6010C	Sediment	Thallium	0.098	FALSE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6020A	Sediment	Vanadium	19.8	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-2	SE-LAL-2	2013-09-08	EPA6020A	Sediment	Zinc	46.7	TRUE	mg/kg	85.15072211	10.67170689		418537	5492507	LCR above Trail	1.616	0.3572	1.0121	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Aluminum	3185	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Antimony	0.007	FALSE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6020A	Sediment	Arsenic	0.89	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Barium	106.6	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6020A	Sediment	Beryllium	0.233	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6020A	Sediment	Cadmium	0.0685	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Calcium	1505	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6020A	Sediment	Chromium	6.675	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6020A	Sediment	Cobalt	4.24	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6020A	Sediment	Copper	3.53	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Iron	10640	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6020A	Sediment	Lead	7.7	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Magnesium	2270	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Manganese	719	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6020A	Sediment	Nickel	6.925	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Potassium	469.5	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Selenium	0.2	FALSE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Silver	0.053	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Sodium	43.6	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6010C	Sediment	Thallium	0.028	FALSE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6020A	Sediment	Vanadium	10.235	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-3	SE-LAL-3	2013-09-08	EPA6020A	Sediment	Zinc	25.05	TRUE	mg/kg	62.52776095	2.049263073		418371	5493674	LCR above Trail	2.8728	2.0991	0.6994	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Aluminum	2850	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Antimony	0.064	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6020A	Sediment	Arsenic	0.63	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Barium	56.2	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6020A	Sediment	Beryllium	0.144	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6020A	Sediment	Cadmium	0.184	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Calcium	1980	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6020A	Sediment	Chromium	15.5	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6020A	Sediment	Cobalt	2.57	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6020A	Sediment	Copper	3.59	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Iron	6920	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6020A	Sediment	Lead	11.4	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Magnesium	1970	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Manganese	82.8	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA7471B	Sediment	Mercury	0.004	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6020A	Sediment	Nickel	11.8	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Potassium	1170	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Selenium	0.1	FALSE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Silver	0.044	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Sodium	47.9	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6010C	Sediment	Thallium	0.062	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6020A	Sediment	Vanadium	8.98	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-4	SE-LAL-4	2013-09-07	EPA6020A	Sediment	Zinc	33.3	TRUE	mg/kg	72.84332303	4.447990426		435078	5466832	LCR above Trail	2.4924	-0.4979	0.979	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Aluminum	12100	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Antimony	0.113	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6020A	Sediment	Arsenic	5.95	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Barium	138	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6020A	Sediment	Beryllium	0.479	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6020A	Sediment	Cadmium	0.399	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Calcium	3590	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6020A	Sediment	Chromium	33.7	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6020A	Sediment	Cobalt	13.2	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6020A	Sediment	Copper	23.6	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Iron	18800	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6020A	Sediment	Lead	20.8	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Magnesium	6660	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Manganese	236	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA7471B	Sediment	Mercury	0.018	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6020A	Sediment	Nickel	38.5	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Potassium	2980	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Selenium	0.4	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Silver	0.141	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Sodium	229	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6010C	Sediment	Thallium	0.271	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6020A	Sediment	Vanadium	27.3	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-5	SE-LAL-5	2013-09-07	EPA6020A	Sediment	Zinc	63.7	TRUE	mg/kg	57.64915592	39.87627136		435187	5466555	LCR above Trail	3.1227	-0.4634	0.8082	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Aluminum	5000	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Antimony	0.1	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6020A	Sediment	Arsenic	0.81	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Barium	51.9	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6020A	Sediment	Beryllium	0.184	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6020A	Sediment	Cadmium	0.219	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Calcium	2480	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6020A	Sediment	Chromium	14	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6020A	Sediment	Cobalt	3.52	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6020A	Sediment	Copper	5.58	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Iron	9010	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6020A	Sediment	Lead	12.8	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Magnesium	3020	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Manganese	111	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA7471B	Sediment	Mercury	0.007	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6020A	Sediment	Nickel	13.5	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Potassium	1070	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Selenium	0.1	FALSE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Silver	0.07	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Sodium	89	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6010C	Sediment	Thallium	0.09	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6020A	Sediment	Vanadium	12.3	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	LAL-6	SE-LAL-6	2013-09-07	EPA6020A	Sediment	Zinc	39.2	TRUE	mg/kg	86.69941061	13.16306483		435336	5466507	LCR above Trail	2.5646	-0.5897	1.0017	3
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Aluminum	9790	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Antimony	0.517	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6020A	Sediment	Arsenic	2.91	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Barium	166	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6020A	Sediment	Beryllium	0.355	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6020A	Sediment	Cadmium	1.06	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Calcium	8150	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Chromium	19.6	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6020A	Sediment	Cobalt	6.11	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Copper	31.9	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Iron	17000	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Lead	46.3	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Magnesium	7200	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Manganese	337	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA7471B	Sediment	Mercury	0.105	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6020A	Sediment	Nickel	14.9	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Potassium	2200	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Selenium	0.3	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Silver	0.321	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Sodium	197	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Thallium	0.237	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Vanadium	27.8	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-1	SE-REF-1	2013-10-04	EPA6010C	Sediment	Zinc	169	TRUE	mg/kg	81.9929542	16.970307	453.3399963	416077	5380829	OU 2 Upper Laucustrine CSM Unit	0.1514	-1.2551	0.2681	2
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Aluminum	9600	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Antimony	0.163	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6020A	Sediment	Arsenic	5.97	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Barium	79.8	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6020A	Sediment	Beryllium	0.282	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6020A	Sediment	Cadmium	0.257	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Calcium	6530	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6020A	Sediment	Chromium	10.4	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6020A	Sediment	Cobalt	5.11	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6020A	Sediment	Copper	10.4	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Iron	17100	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Lead	11	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Magnesium	7150	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Manganese	333	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA7471B	Sediment	Mercury	0.011	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6020A	Sediment	Nickel	10	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Potassium	1740	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Selenium	0.2	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Silver	0.078	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Sodium	139	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Thallium	0.18	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Vanadium	23.7	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-10b	SE-REF-10b	2013-09-18	EPA6010C	Sediment	Zinc	72.8	TRUE	mg/kg	70.99680325	25.38021893	-828.6099854	356558	5311244	OU 2 Lower Laucustrine CSM Unit	2.6779	-0.2227	-0.9282	3
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Aluminum	10200	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Antimony	0.524	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6020A	Sediment	Arsenic	2.78	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Barium	180	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6020A	Sediment	Beryllium	0.317	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6020A	Sediment	Cadmium	0.909	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Calcium	6590	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6020A	Sediment	Chromium	13.6	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6020A	Sediment	Cobalt	5.16	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Copper	28	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Iron	18800	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Lead	50.8	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Magnesium	6020	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Manganese	259	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA7471B	Sediment	Mercury	0.107	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6020A	Sediment	Nickel	13	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Potassium	1640	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Selenium	0.3	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Silver	0.274	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Sodium	166	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Thallium	0.211	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Vanadium	32.1	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-2	SE-REF-2	2013-10-01	EPA6010C	Sediment	Zinc	201	TRUE	mg/kg	58.98452611	37.91102515	703.0900269	414938	5376760	OU 2 Upper Laucustrine CSM Unit	-0.1769	-1.3608	0.2186	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Aluminum	14100	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Antimony	1.3	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6020A	Sediment	Arsenic	8.3	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Barium	301	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6020A	Sediment	Beryllium	0.461	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6020A	Sediment	Cadmium	6.97	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Calcium	10000	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6020A	Sediment	Chromium	26.1	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6020A	Sediment	Cobalt	8.5	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Copper	66.2	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Iron	23700	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Lead	326	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Magnesium	9740	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Manganese	478	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA7471B	Sediment	Mercury	0.87	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6020A	Sediment	Nickel	25	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Potassium	1760	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Silver	0.891	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Sodium	206	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Thallium	0.52	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Vanadium	35.7	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-3	SE-REF-3	2013-10-01	EPA6010C	Sediment	Zinc	676	TRUE	mg/kg	46.25891947	52.65035678	-184.3500061	412079	5370108	OU 2 Upper Laucustrine CSM Unit	-2.4883	-2.7814	0.4538	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Aluminum	14600	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Antimony	0.477	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6020A	Sediment	Arsenic	4.5	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Barium	165	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6020A	Sediment	Beryllium	0.478	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6020A	Sediment	Cadmium	1.61	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Calcium	5370	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6020A	Sediment	Chromium	23.3	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6020A	Sediment	Cobalt	8.46	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Copper	36.2	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Iron	22600	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Lead	76.4	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Magnesium	7130	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Manganese	506	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA7471B	Sediment	Mercury	0.202	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6020A	Sediment	Nickel	21	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Potassium	2240	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Selenium	0.4	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Silver	0.399	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Sodium	267	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Thallium	0.424	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Vanadium	39.3	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-4	SE-REF-4	2013-09-30	EPA6010C	Sediment	Zinc	196	TRUE	mg/kg	16.06639184	83.57561293	706.9899902	411920	5356518	OU 2 Upper Laucustrine CSM Unit	0.2527	-1.4738	1.1409	2
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Aluminum	8230	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Antimony	0.143	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6020A	Sediment	Arsenic	2.42	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Barium	74.6	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6020A	Sediment	Beryllium	0.206	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6020A	Sediment	Cadmium	0.326	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Calcium	2580	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6020A	Sediment	Chromium	12.6	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6020A	Sediment	Cobalt	4.48	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Copper	12	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Iron	16300	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Lead	12.5	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Magnesium	4740	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Manganese	300	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA7471B	Sediment	Mercury	0.012	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6020A	Sediment	Nickel	12.3	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Potassium	954	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Selenium	0.2	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Silver	0.047	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Sodium	112	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Thallium	0.133	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Vanadium	25.4	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-5	SE-REF-5	2013-09-27	EPA6010C	Sediment	Zinc	71	TRUE	mg/kg	74.20455686	10.70962561	-1470.449951	414617	5352322	OU 2 Upper Laucustrine CSM Unit	2.313	-0.1755	0.5691	3
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Aluminum	9030	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Antimony	0.234	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6020A	Sediment	Arsenic	4.68	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Barium	102	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6020A	Sediment	Beryllium	0.292	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6020A	Sediment	Cadmium	0.901	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Calcium	2750	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6020A	Sediment	Chromium	16.5	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6020A	Sediment	Cobalt	6.45	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6020A	Sediment	Copper	16	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Iron	16700	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Lead	48.7	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Magnesium	4320	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Manganese	294	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA7471B	Sediment	Mercury	0.058	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6020A	Sediment	Nickel	16.7	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Potassium	1410	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Selenium	0.3	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Silver	0.12	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Sodium	126	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Thallium	0.356	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Vanadium	25.2	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-6	SE-REF-6	2013-09-14	EPA6010C	Sediment	Zinc	143	TRUE	mg/kg	66.46512632	29.04340315	426.5100098	400853	5322794	OU 2 Middle Laucustrine CSM Unit	0.87	-1.2856	1.037	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Aluminum	20200	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Antimony	0.733	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6020A	Sediment	Arsenic	8.89	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Barium	221	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6020A	Sediment	Beryllium	0.656	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6020A	Sediment	Cadmium	3.29	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Calcium	4880	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6020A	Sediment	Chromium	31.9	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6020A	Sediment	Cobalt	11.3	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6020A	Sediment	Copper	47.7	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Iron	30400	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Lead	146	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Magnesium	9690	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Manganese	981	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA7471B	Sediment	Mercury	0.479	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6020A	Sediment	Nickel	28.9	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Potassium	2960	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Silver	0.598	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Sodium	288	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Thallium	0.603	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Vanadium	47	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-7	SE-REF-7	2013-09-13	EPA6010C	Sediment	Zinc	406	TRUE	mg/kg	12.93527346	85.49924737	658.3200073	396874	5316362	OU 2 Middle Laucustrine CSM Unit	-0.2717	-1.8196	1.4795	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Aluminum	18200	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Antimony	0.427	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6020A	Sediment	Arsenic	7.48	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Barium	158	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6020A	Sediment	Beryllium	0.532	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6020A	Sediment	Cadmium	2.52	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Calcium	3760	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6020A	Sediment	Chromium	20.7	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6020A	Sediment	Cobalt	8.71	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6020A	Sediment	Copper	29.2	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Iron	24800	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Lead	95.8	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Magnesium	8400	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Manganese	696	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA7471B	Sediment	Mercury	0.311	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6020A	Sediment	Nickel	18.6	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Potassium	2800	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Selenium	0.6	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Silver	0.373	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Sodium	242	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Thallium	0.565	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Vanadium	35.9	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-8	SE-REF-8	2013-09-16	EPA6010C	Sediment	Zinc	377	TRUE	mg/kg	45.0394019	53.34410992	-473	391932	5299478	OU 2 Middle Laucustrine CSM Unit	-0.0335	-1.8806	1.3409	2
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Aluminum	4670	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Antimony	0.037	FALSE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6020A	Sediment	Arsenic	0.91	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Barium	37.5	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6020A	Sediment	Beryllium	0.229	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6020A	Sediment	Cadmium	0.07	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Calcium	1840	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6020A	Sediment	Chromium	2.28	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6020A	Sediment	Cobalt	2.74	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6020A	Sediment	Copper	3.88	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Iron	10100	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Lead	2.9	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Magnesium	1940	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Manganese	148	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6020A	Sediment	Nickel	2.38	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Potassium	1310	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Selenium	0.2	FALSE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Silver	0.042	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Sodium	46.6	FALSE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Thallium	0.161	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Vanadium	15.8	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	REF-9	SE-REF-9	2013-09-19	EPA6010C	Sediment	Zinc	32.1	TRUE	mg/kg	78.2439705	2.591189954	849.4099731	360881	5313941	OU 2 Lower Laucustrine CSM Unit	3.4214	0.6111	0.299	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Aluminum	1750	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Antimony	0.006	FALSE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6020A	Sediment	Arsenic	0.2	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Barium	12.7	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6020A	Sediment	Beryllium	0.0515	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6020A	Sediment	Cadmium	0.015	FALSE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Calcium	667	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6020A	Sediment	Chromium	2.245	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6020A	Sediment	Cobalt	0.906	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Copper	0.8	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Iron	2735	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Lead	1.1	FALSE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Magnesium	800	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Manganese	42.6	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6020A	Sediment	Nickel	1.98	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Potassium	312	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Selenium	0.2	FALSE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Silver	0.018	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Sodium	26.25	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Thallium	0.0255	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Vanadium	3.75	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-1	SE-TRIB-1	2013-09-26	EPA6010C	Sediment	Zinc	7.55	TRUE	mg/kg	88.67295662	0.405086658	1476.430054	409565	5365250	US Tributary	3.8721	0.3478	0.5404	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Aluminum	2080	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Antimony	0.006	FALSE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6020A	Sediment	Arsenic	0.35	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Barium	18.6	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6020A	Sediment	Beryllium	0.107	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6020A	Sediment	Cadmium	0.025	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Calcium	1300	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Chromium	2.8	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6020A	Sediment	Cobalt	1.34	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Copper	2.9	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Iron	4030	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Lead	1.2	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Magnesium	1280	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Manganese	82.1	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6020A	Sediment	Nickel	2.13	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Potassium	413	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Selenium	0.1	FALSE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Silver	0.013	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Sodium	48.2	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Thallium	0.035	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Vanadium	6.7	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-2	SE-TRIB-2	2013-10-07	EPA6010C	Sediment	Zinc	10.1	TRUE	mg/kg	98.28037007	1.558728882	573.8099976	417919	5389776	US Tributary	3.6041	0.8395	0.2916	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Aluminum	6570	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Antimony	0.38	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6020A	Sediment	Arsenic	2.06	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Barium	123	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6020A	Sediment	Beryllium	0.183	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6020A	Sediment	Cadmium	0.388	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Calcium	20700	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6020A	Sediment	Chromium	21.2	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6020A	Sediment	Cobalt	5.29	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Copper	9.8	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Iron	14300	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Lead	5.7	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Magnesium	4620	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Manganese	194	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA7471B	Sediment	Mercury	0.007	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6020A	Sediment	Nickel	17.4	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Potassium	641	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Selenium	0.4	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Silver	0.348	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Sodium	55.2	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Thallium	0.053	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Vanadium	26.7	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-3	SE-TRIB-3	2013-10-01	EPA6010C	Sediment	Zinc	47.8	TRUE	mg/kg	77.01692247	3.758362849	-1623.26001	412684	5363469	US Tributary	2.3394	-0.1068	-1.5381	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Aluminum	8920	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Antimony	0.164	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6020A	Sediment	Arsenic	3.71	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Barium	69.2	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6020A	Sediment	Beryllium	0.164	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6020A	Sediment	Cadmium	0.161	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Calcium	11600	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Chromium	22.3	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6020A	Sediment	Cobalt	5.44	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Copper	11	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Iron	18300	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Lead	7.9	FALSE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Magnesium	6460	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Manganese	377	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA7471B	Sediment	Mercury	0.003	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6020A	Sediment	Nickel	12.2	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Potassium	773	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Selenium	0.2	FALSE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Silver	0.048	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Sodium	94.4	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Thallium	0.059	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Vanadium	36.4	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-4	SE-TRIB-4	2013-10-09	EPA6010C	Sediment	Zinc	47.3	TRUE	mg/kg	78.64097783	3.59436503	584.0999756	428199	5408256	US Tributary	3.5757	0.8149	-1.1676	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Aluminum	9380	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Antimony	0.428	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6020A	Sediment	Arsenic	6.51	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Barium	95.9	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6020A	Sediment	Beryllium	0.23	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6020A	Sediment	Cadmium	0.304	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Calcium	44900	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Chromium	29.3	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6020A	Sediment	Cobalt	6.54	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Copper	19.5	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Iron	24800	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Lead	9.8	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Magnesium	6670	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Manganese	282	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA7471B	Sediment	Mercury	0.006	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6020A	Sediment	Nickel	17.2	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Potassium	679	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Selenium	0.3	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Silver	0.065	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Sodium	107	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Thallium	0.042	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Vanadium	43.6	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2013 Phase 2 Sediment Study	TRIB-5	SE-TRIB-5	2013-10-09	EPA6010C	Sediment	Zinc	61.9	TRUE	mg/kg	80.05470016	5.69286872	2501.360107	430696	5412505	US Tributary	2.6865	0.4165	-2.2542	3
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Aluminum	1850	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Antimony	0.217	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6020A	Sediment	Arsenic	0.88	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Barium	183	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6020A	Sediment	Beryllium	0.05	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6020A	Sediment	Cadmium	0.736	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Calcium	208000	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Chromium	4.1	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6020A	Sediment	Cobalt	1.71	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Copper	6.6	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Iron	3530	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Lead	10.8	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Magnesium	4600	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Manganese	177	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA7471B	Sediment	Mercury	0.003	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6020A	Sediment	Nickel	5.88	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Potassium	309	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Selenium	1.2	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Silver	0.034	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Sodium	90.1	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Thallium	0.028	FALSE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Vanadium	7.3	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2013 Phase 2 Sediment Study	TRIB-6	SE-TRIB-6	2013-10-10	EPA6010C	Sediment	Zinc	29.1	TRUE	mg/kg	75.10466989	11.20772947	-798.7399902	441374	5416578	US Tributary	-1.2576	-0.0744	-5.3647	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Aluminum	10450	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Antimony	3.245	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6020A	Sediment	Arsenic	12	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6020A	Sediment	Barium	504.5	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6020A	Sediment	Beryllium	0.473	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6020A	Sediment	Cadmium	7.82	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Calcium	19500	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6020A	Sediment	Chromium	31.6	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6020A	Sediment	Cobalt	9.06	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6020A	Sediment	Copper	144.5	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Iron	25700	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Magnesium	14100	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Manganese	334	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA7471B	Sediment	Mercury	1.1865	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6020A	Sediment	Nickel	24.75	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Potassium	1435	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Selenium	1.175	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Silver	1.65	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Sodium	143	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6010C	Sediment	Thallium	0.7735	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6020A	Sediment	Vanadium	36.5	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-B	BOSS-001-2mm	2015-04-22	EPA6020A	Sediment	Zinc	1740	TRUE	mg/kg	51.38467862	47.48497148	-224.8699951	423392	5401424	OU 1 South	-3.7643	-2.9551	-0.6249	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Aluminum	7400	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Antimony	0.186	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Arsenic	4.205	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Barium	82.8	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Beryllium	0.269	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Cadmium	0.782	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Calcium	3485	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Chromium	17.45	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Cobalt	5.79	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Copper	14.3	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Iron	13950	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Lead	29.75	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Magnesium	3590	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Manganese	168	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA7471B	Sediment	Mercury	0.039	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Nickel	14.4	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Potassium	1230	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Selenium	0.12	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Silver	0.077	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Sodium	113	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6010C	Sediment	Thallium	0.267	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Vanadium	25.95	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-C	BOSS-004-2mm	2015-04-28	EPA6020A	Sediment	Zinc	107	TRUE	mg/kg	72.33543917	24.14238163	-718.7700195	425257	5393903	OU 1 South	1.2115	-1.3832	0.7195	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	5980	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Antimony	1.915	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	11.1	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Barium	770.5	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.2795	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	7.375	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Calcium	48300	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Chromium	19.65	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	5.605	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Copper	99.35	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Iron	26800	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Lead	382	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	24800	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Manganese	452	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.688	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Nickel	18.2	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1016	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.825	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.611	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Sodium	133	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.4685	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	31.85	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	BOSS-006-2mm	2015-04-29	EPA6020A	Sediment	Zinc	2230	TRUE	mg/kg	68.32420518	31.57894737	-286.0499878	423528	5401526	OU 1 South	-4.7262	-2.5321	-2.6289	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	12750	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Antimony	2.27	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	13.6	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Barium	721	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.559	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	11.2	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Calcium	18250	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Chromium	36.3	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	9.45	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Copper	154.5	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Iron	24950	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Lead	539.5	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	14550	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Manganese	353	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA7471B	Sediment	Mercury	1.695	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Nickel	26.6	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1570	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Selenium	1.365	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Silver	2.18	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Sodium	195	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.8965	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	40.9	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-007-2mm	2015-04-29	EPA6020A	Sediment	Zinc	1790	TRUE	mg/kg	41.1850291	58.564118	-333.1099854	423490	5401374	OU 1 South	-4.1262	-3.1854	-0.4713	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	7190	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Antimony	1.3	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	12.25	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Barium	952	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.342	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	8.135	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Calcium	40200	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Chromium	23.7	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	6.33	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Copper	65.35	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Iron	23100	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Lead	429	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	25600	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Manganese	369	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.735	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Nickel	21.85	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1155	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.81	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.659	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Sodium	132.5	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.532	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	35.45	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	BOSS-008-2mm	2015-04-29	EPA6020A	Sediment	Zinc	1745	TRUE	mg/kg	56.24583184	43.69773765	-333.1099854	423490	5401374	OU 1 South	-4.3532	-3.0171	-2.4776	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Aluminum	12300	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Antimony	2.77	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Arsenic	10.7	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Barium	455	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Beryllium	0.5675	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Cadmium	6.455	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Calcium	13950	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Chromium	33.05	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Cobalt	10.1	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Copper	148	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Iron	25800	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Lead	326	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Magnesium	11600	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Manganese	312	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA7471B	Sediment	Mercury	0.8725	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Nickel	26.25	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Potassium	1825	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Selenium	1.175	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Silver	1.98	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Sodium	163	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6010C	Sediment	Thallium	0.735	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Vanadium	38.2	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	BOSS-009-2mm	2015-05-01	EPA6020A	Sediment	Zinc	1290	TRUE	mg/kg	36.2531844	63.57044876	-199.1199951	424294	5395317	OU 1 South	-3.1062	-2.7763	-0.0132	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Aluminum	8240	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Antimony	1.36	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Arsenic	11.25	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Barium	845.5	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Beryllium	0.385	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Cadmium	7.355	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Calcium	35200	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Chromium	27.5	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Cobalt	7.915	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Copper	66.4	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Iron	23600	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Lead	412	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Magnesium	23250	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Manganese	341.5	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA7471B	Sediment	Mercury	0.8595	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Nickel	27.8	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Potassium	1610	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Selenium	0.97	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Silver	0.804	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Sodium	139	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6010C	Sediment	Thallium	0.5915	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Vanadium	36.75	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	BOSS-010-2mm	2015-05-01	EPA6020A	Sediment	Zinc	1505	TRUE	mg/kg	35.78495053	64.10845741	-349.9299927	424607	5394942	OU 1 South	-3.831	-3.1176	-1.9706	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	7245	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Antimony	0.6255	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	9.12	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Barium	95.15	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.275	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	0.572	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Calcium	16200	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Chromium	25.05	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Cobalt	8.47	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Copper	23.45	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Iron	20000	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Lead	34.95	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	7335	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Manganese	274	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.031	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Nickel	25.75	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Potassium	800	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.325	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Silver	0.1825	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Sodium	128.5	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.096	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	32.2	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	BOSS-012-2mm	2015-05-04	EPA6020A	Sediment	Zinc	143.5	TRUE	mg/kg	37.90604821	3.139941835	-225.0800018	422691	5400782	OU 1 South	1.241	-0.8285	-1.0803	3
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	11250	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Antimony	2.69	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	16.45	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Barium	742	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.5495	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	12.25	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Calcium	23500	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Chromium	33.65	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	9.7	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Copper	109.5	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Iron	28750	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Lead	579	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	17100	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Manganese	390.5	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.745	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Nickel	28.6	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1590	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1.51	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Silver	1.535	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Sodium	170	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.609	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	41.25	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	BOSS-013-2mm	2015-05-06	EPA6020A	Sediment	Zinc	1545	TRUE	mg/kg	18.60653251	81.36313075	-369.6199951	425038	5392795	OU 1 South	-4.0403	-3.2878	-0.9531	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	7245	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Antimony	0.386	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	7.315	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Barium	119.5	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.3225	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	0.4395	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Calcium	5265	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Chromium	18.85	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	6.23	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Copper	18.35	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Iron	18250	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Lead	14.9	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	4635	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Manganese	269.5	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA7471B	Sediment	Mercury	0.0325	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Nickel	15.8	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Potassium	927.5	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Selenium	0.21	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Silver	0.135	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Sodium	96	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.1485	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	34.65	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	BOSS-019-2mm	2015-05-06	EPA6020A	Sediment	Zinc	79.35	TRUE	mg/kg	70.13730557	26.33125602	190.0399933	423209	5401902	OU 1 South	1.7883	-0.6327	-0.2915	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	6830	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Antimony	1.98	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	5.4	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Barium	143	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.301	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	3.08	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Calcium	3150	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Chromium	20.6	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	7.57	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Copper	15.1	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Iron	15500	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Lead	1240	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	3630	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Manganese	261	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.013	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Nickel	15.4	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1460	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.4	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Silver	4.72	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Sodium	139	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.127	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	33.2	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Zinc	383	TRUE	mg/kg	49.14158756	46.10179762	-298.25	422826	5400904	OU 1 South	-1.1515	-1.6449	1.615	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	4690	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.12	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	3.79	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Barium	45.4	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.233	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	2.03	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2910	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Chromium	14.6	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	5.07	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Copper	9.84	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Iron	11100	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Lead	16.3	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	2750	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Manganese	203	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.003	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Nickel	12.1	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1010	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.1	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.034	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Sodium	114	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.113	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	25.5	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Zinc	253	TRUE	mg/kg	80.95775226	18.80639869	-298.25	422826	5400904	OU 1 South	1.4966	-0.7697	1.0597	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	5370	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.449	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	4.53	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Barium	75.2	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.264	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	2.6	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Calcium	3430	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Chromium	17.5	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	5.71	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Copper	13.4	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Iron	14600	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Lead	1130	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	3280	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Manganese	345	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.005	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Nickel	14.9	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1180	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.09	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.807	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Sodium	132	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.091	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	29.5	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-01	F-1-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Zinc	368	TRUE	mg/kg	52.98841228	45.90363895	-298.25	422826	5400904	OU 1 South	-0.8104	-1.2729	1.6632	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	6650	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Antimony	3.11	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	6.46	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Barium	234	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.231	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	4.14	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Calcium	4670	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Chromium	14	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	5.51	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Copper	25.6	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Iron	16500	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Lead	3020	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	4460	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Manganese	317	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.219	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Nickel	13	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1160	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.61	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Silver	4.98	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Sodium	105	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.233	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	23.2	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Zinc	750	TRUE	mg/kg	88.31025487	7.254665864	-282.4100037	422845	5400934	OU 1 South	-3.7441	-2.6373	0.8469	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	8050	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Antimony	2.24	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	11	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Barium	655	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.336	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Calcium	20900	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Chromium	20.8	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	7.49	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Copper	45.8	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Iron	21500	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Lead	1560	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	14800	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Manganese	682	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.728	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Nickel	19.8	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1340	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.93	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Silver	3.66	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Sodium	129	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.563	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	30.6	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Zinc	1400	TRUE	mg/kg	61.57921549	36.12837494	-282.4100037	422845	5400934	OU 1 South	-4.5963	-2.9955	-1.0096	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	8080	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Antimony	2.31	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	9.95	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Barium	733	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.325	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	6.84	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Calcium	17900	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Chromium	19.2	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	6.14	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Copper	42.2	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Iron	19700	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Lead	2070	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	12300	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Manganese	284	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.87	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Nickel	17.8	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1280	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.68	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Silver	2.59	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Sodium	129	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.55	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	30.6	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-02	F-1-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Zinc	993	TRUE	mg/kg	43.67484845	25.8074133	-282.4100037	422845	5400934	OU 1 South	-4.6495	-3.3746	-1.1416	2
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	9060	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.128	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	2.43	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Barium	80.2	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.268	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	0.328	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2370	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Chromium	12.5	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	4.37	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Copper	11.1	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Iron	11700	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Lead	58.5	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	2750	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Manganese	129	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.007	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Nickel	10.9	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1070	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.09	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.1	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Sodium	142	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.088	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	24.2	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Zinc	51.2	TRUE	mg/kg	72.78284397	17.10592244	-300.6700134	422846	5400915	OU 1 South	1.7346	-0.7254	1.0378	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	10700	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.078	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	2.23	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Barium	94.7	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.298	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	0.089	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2320	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Chromium	13.2	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	4.71	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Copper	11.4	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Iron	11500	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Lead	12.9	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	3000	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Manganese	150	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.007	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Nickel	12.4	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1270	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.08	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.103	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Sodium	171	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.097	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	22.6	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Zinc	36.8	TRUE	mg/kg	64.2892918	25.87398578	-300.6700134	422846	5400915	OU 1 South	3.1482	0.1947	0.6613	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	9920	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.081	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	2.55	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Barium	88.9	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.309	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	0.099	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2560	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Chromium	15	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	5.04	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Copper	11	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Iron	13000	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Lead	9.11	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	3200	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Manganese	158	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.008	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Nickel	12.1	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1530	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.09	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.078	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Sodium	170	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.113	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	26	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	F-1-COR-03	F-1-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Zinc	37.5	TRUE	mg/kg	71.03991597	25.06302521	-300.6700134	422846	5400915	OU 1 South	3.4659	0.214	0.5947	3
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	10600	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Antimony	2.25	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	9.91	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Barium	673	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.484	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	8.17	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Calcium	22100	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Chromium	30	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	8.49	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Copper	117	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Iron	23900	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Lead	387	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	15900	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Manganese	345	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA7471B	Sediment	Mercury	1.36	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Nickel	24.5	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1430	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.97	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Silver	1.68	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Sodium	152	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.814	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	36.5	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Zinc	1460	TRUE	mg/kg	44.03380167	55.73203014	-269.519989	423611	5401581	OU 1 South	-3.9198	-3.0519	-0.8773	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	7620	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Antimony	2.6	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	17.9	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Barium	786	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.39	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	13.4	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Calcium	38700	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Chromium	23.3	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	6.97	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Copper	98.8	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Iron	26400	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Lead	691	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	22100	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Manganese	395	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA7471B	Sediment	Mercury	1.61	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Nickel	20.9	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1140	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.94	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Silver	1.15	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Sodium	123	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.73	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	33.6	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Zinc	2260	TRUE	mg/kg	55.81731763	44.05868981	-269.519989	423611	5401581	OU 1 South	-5.0466	-3.4179	-2.1202	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	5220	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Antimony	1.4	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	7.49	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Barium	326	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.224	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	5.86	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Calcium	27400	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Chromium	11.7	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	4.62	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Copper	68.1	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Iron	17900	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Lead	286	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	13400	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Manganese	324	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.393	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Nickel	10.6	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Potassium	812	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.36	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.316	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Sodium	124	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.207	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	20.6	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-07	SDU-01-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Zinc	1710	TRUE	mg/kg	89.98793727	9.981905911	-269.519989	423611	5401581	OU 1 South	-4.4314	-2.4598	-1.8893	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	11800	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Antimony	2.71	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	13.3	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Barium	686	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.536	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	11.2	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Calcium	18000	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Chromium	35.1	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	9.5	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Copper	142	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Iron	25000	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Lead	535	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	14500	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Manganese	321	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA7471B	Sediment	Mercury	1.91	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Nickel	27.9	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1470	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Selenium	1.33	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Silver	2.21	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Sodium	153	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.936	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	39.8	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Zinc	1710	TRUE	mg/kg	42.63852771	57.32146429	-343.4899902	423556	5401471	OU 1 South	-4.1472	-3.3794	-0.5103	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	6230	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Antimony	1.49	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	11.4	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Barium	804	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.293	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	7.51	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Calcium	42500	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Chromium	19.8	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	5.51	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Copper	64.4	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Iron	22900	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Lead	378	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	23300	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Manganese	363	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.656	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Nickel	19	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1020	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.7	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.595	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Sodium	113	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.477	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	30.9	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Zinc	1640	TRUE	mg/kg	62.53066231	37.44889616	-343.4899902	423556	5401471	OU 1 South	-4.4582	-2.9104	-2.6498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	6340	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Antimony	2.78	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	16.9	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Barium	921	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.319	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	11.3	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Calcium	50500	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Chromium	19.7	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	5.91	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Copper	83.1	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Iron	25900	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Lead	614	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Manganese	427	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA7471B	Sediment	Mercury	1.17	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Nickel	16.8	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1050	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.77	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.834	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Sodium	109	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.482	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	31.8	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-09	SDU-01-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Zinc	2190	TRUE	mg/kg	62.86445013	37.12531969	-343.4899902	423556	5401471	OU 1 South	-5.1877	-3.1805	-2.8567	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	13300	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Antimony	2.3	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	8.34	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Barium	511	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.612	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	6.49	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Calcium	13000	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Chromium	34.6	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	10.2	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Copper	137	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Iron	24300	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Lead	281	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	11000	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Manganese	306	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.812	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Nickel	27.1	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1810	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Selenium	1.22	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Silver	2.05	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Sodium	165	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.796	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	40.2	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Zinc	1140	TRUE	mg/kg	46.77141409	53.13735428	-286.0499878	423528	5401526	OU 1 South	-2.9597	-2.7473	0.1891	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	10000	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Antimony	2.6	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	14	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Barium	608	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.458	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	10.6	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Calcium	25200	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Chromium	30.5	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	8.72	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Copper	146	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Iron	27000	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Lead	472	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	17600	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Manganese	324	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA7471B	Sediment	Mercury	1.13	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Nickel	25.4	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1360	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Selenium	1.43	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Silver	1.71	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Sodium	138	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.794	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	36.3	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-XRF-08	SDU-01-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Zinc	1810	TRUE	mg/kg	58.30530048	41.60378216	-286.0499878	423528	5401526	OU 1 South	-4.1518	-3.1605	-1.133	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Aluminum	10800	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Antimony	3.31	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Arsenic	10.7	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Barium	475	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Beryllium	0.506	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Cadmium	7.14	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Calcium	16700	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Chromium	31.1	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Cobalt	9.37	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Copper	138	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Iron	23300	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Lead	324	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Magnesium	13000	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Manganese	299	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA7471B	Sediment	Mercury	0.72	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Nickel	25.3	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Potassium	1530	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Selenium	1.12	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Silver	1.77	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Sodium	147	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6010C	Sediment	Thallium	0.724	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Vanadium	36.6	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-01-ICS	SDU-01-ICS-2mm	2015-04-21	EPA6020A	Sediment	Zinc	1360	TRUE	mg/kg	47.30126582	51.41265823	-244.2799988	423547	5401578	OU 1 South	-3.3432	-2.8619	-0.4266	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	6460	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Antimony	2.09	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	15.3	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Barium	1080	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.323	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	10.8	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Calcium	50000	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Chromium	19.9	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	5.68	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Copper	78.5	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Iron	24500	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Lead	597	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	28800	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Manganese	471	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA7471B	Sediment	Mercury	1.03	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Nickel	17.2	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1060	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.71	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.753	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Sodium	121	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.532	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	34	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-08	SDU-02-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Zinc	2330	TRUE	mg/kg	62.17566993	37.82433007	-333.1099854	423490	5401374	OU 1 South	-5.19	-3.082	-2.8974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	11900	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Antimony	1.95	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	10.5	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Barium	577	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.546	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	7.38	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Calcium	19700	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Chromium	33.5	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	9.57	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Copper	139	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Iron	25200	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Lead	361	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	13700	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Manganese	336	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.902	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Nickel	26.4	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1700	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Selenium	1.25	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Silver	1.6	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Sodium	173	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.865	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	39.4	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Zinc	1570	TRUE	mg/kg	49.6237584	50.19564563	-247.7400055	423380	5401374	OU 1 South	-3.4889	-2.8051	-0.4834	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	8260	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Antimony	1.73	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	10.8	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Barium	626	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.371	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	6.51	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Calcium	26800	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Chromium	26.1	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	7.28	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Copper	133	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Iron	27600	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Lead	365	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	15600	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Manganese	419	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.827	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Nickel	20.4	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1280	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Silver	1.05	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Sodium	172	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.64	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	32.6	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Zinc	2070	TRUE	mg/kg	68.48348502	31.31199509	-247.7400055	423380	5401374	OU 1 South	-4.1604	-2.3339	-1.3094	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	5970	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Antimony	2.63	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	9.74	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Barium	736	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.271	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	6.61	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Calcium	43400	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Chromium	19.3	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	5.73	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Copper	122	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Iron	27600	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Lead	373	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	23500	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Manganese	528	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA7471B	Sediment	Mercury	4	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Nickel	15.1	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1010	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.69	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.517	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Sodium	169	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.394	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	30.5	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-06	SDU-02-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Zinc	2800	TRUE	mg/kg	80.9089999	19.06096706	-247.7400055	423380	5401374	OU 1 South	-5.3326	-2.7234	-2.2332	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	11800	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Antimony	2.34	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	10.7	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Barium	558	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.525	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	6.83	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Calcium	14500	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Chromium	35.4	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	9.67	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Copper	164	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Iron	26200	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Lead	344	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	11100	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Manganese	280	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.987	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Nickel	25.1	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1600	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Selenium	1.21	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Silver	2.08	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Sodium	186	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Thallium	1.02	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	39.4	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Zinc	1590	TRUE	mg/kg	46.46596859	53.35279903	-191.6499939	423353	5401429	OU 1 South	-3.4953	-2.6816	-0.1131	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	9230	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Antimony	1.88	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	12.2	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Barium	638	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.409	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	9.09	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Calcium	21100	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Chromium	29.4	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	7.97	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Copper	134	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Iron	27200	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Lead	420	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	14800	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Manganese	337	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA7471B	Sediment	Mercury	1.11	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Nickel	22.9	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1320	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Selenium	1.16	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Silver	1.24	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Sodium	172	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.656	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	35.6	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Zinc	2080	TRUE	mg/kg	61.45936326	38.48131303	-191.6499939	423353	5401429	OU 1 South	-4.2111	-2.7992	-0.9494	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	7650	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Antimony	1.57	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	12.8	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Barium	487	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.33	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	8.58	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Calcium	30200	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Chromium	23.4	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	6.79	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Copper	110	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Iron	25500	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Lead	507	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	17000	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Manganese	393	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA7471B	Sediment	Mercury	1.2	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Nickel	17.9	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1230	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.81	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.696	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.417	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	35.4	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-XRF-04	SDU-02-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Zinc	2450	TRUE	mg/kg	69.07175903	30.51481445	-191.6499939	423353	5401429	OU 1 South	-4.5024	-2.8902	-1.4677	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Aluminum	9780	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Antimony	2.87	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Arsenic	12.2	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Barium	500	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Beryllium	0.447	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Cadmium	7.8	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Calcium	20000	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Chromium	29.5	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Cobalt	8.63	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Copper	139	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Iron	26800	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Lead	368	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Magnesium	14300	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Manganese	370	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA7471B	Sediment	Mercury	0.946	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Nickel	23.7	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Potassium	1410	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Selenium	1.11	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Silver	1.48	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Sodium	148	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6010C	Sediment	Thallium	0.722	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Vanadium	35	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-A	SDU-02-ICS-A-2mm	2015-04-21	EPA6020A	Sediment	Zinc	1900	TRUE	mg/kg	54.56124221	43.87577894	-219.8699951	423388	5401427	OU 1 South	-3.8005	-2.7537	-0.7355	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Aluminum	10600	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Antimony	3.27	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Arsenic	12.5	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Barium	536	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Beryllium	0.478	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Cadmium	8.58	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Calcium	20600	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Chromium	31.3	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Cobalt	9.07	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Copper	142	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Iron	25900	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Lead	401	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Magnesium	14600	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Manganese	343	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA7471B	Sediment	Mercury	0.925	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Nickel	25.4	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Potassium	1430	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Selenium	1.26	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Silver	1.81	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Sodium	149	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6010C	Sediment	Thallium	0.785	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Vanadium	36.5	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-02-ICS-C	SDU-02-ICS-C-2mm	2015-04-22	EPA6020A	Sediment	Zinc	1720	TRUE	mg/kg	48.67219917	50.98547718	-250.5700073	423420	5401418	OU 1 South	-3.7768	-2.901	-0.7301	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	6740	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.632	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	5.16	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Barium	307	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.253	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	2.9	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Calcium	10100	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Chromium	15	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	4	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Copper	22.8	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Iron	13300	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Lead	158	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	7740	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Manganese	166	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.249	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Nickel	12.6	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Potassium	820	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.21	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.321	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Sodium	106	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.325	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	25	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-001-2mm	2015-04-25	EPA6020A	Sediment	Zinc	453	TRUE	mg/kg	61.16694011	15.85315833	-228.5399933	423087	5401100	OU 1 South	-2.55	-2.776	-0.9371	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	8940	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.664	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	5.71	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Barium	365	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.324	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	4.13	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Calcium	10300	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Chromium	15.9	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	4.86	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Copper	24.7	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Iron	14100	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Lead	193	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	7650	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Manganese	236	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.335	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Nickel	14.5	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1130	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.29	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.207	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Sodium	117	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.38	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	24.6	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-002-2mm	2015-04-25	EPA6020A	Sediment	Zinc	530	TRUE	mg/kg	65.02617801	30.96335079	-228.5399933	423087	5401100	OU 1 South	-2.6536	-2.8358	-0.6171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	9590	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.244	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	2.79	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Barium	153	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.295	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	0.92	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2910	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Chromium	15.3	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	4.82	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Copper	11.4	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Iron	12400	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Lead	37.4	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	3410	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Manganese	179	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.055	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Nickel	12.8	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1280	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.11	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.057	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Sodium	113	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.145	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	24	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-01	SDU-03-COR-01-003-2mm	2015-04-25	EPA6020A	Sediment	Zinc	111	TRUE	mg/kg	68.60368759	25.0569712	-228.5399933	423087	5401100	OU 1 South	0.5875	-1.5458	0.8552	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	9770	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.422	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	3.38	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Barium	126	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.286	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	1.55	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2960	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Chromium	14.7	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	4.53	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Copper	16.3	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Iron	12300	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Lead	59.9	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	3330	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Manganese	166	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.088	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Nickel	12.8	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1010	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.14	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.126	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Sodium	130	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.179	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	25.5	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-001-2mm	2015-04-25	EPA6020A	Sediment	Zinc	167	TRUE	mg/kg	60.7660021	20.55613851	-256.9599915	423029	5401055	OU 1 South	-0.2368	-2.0371	1.032	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	11500	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.527	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	3.79	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Barium	194	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.326	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	0.633	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2910	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Chromium	14.1	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	4.42	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Copper	13.3	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Iron	12100	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Lead	31.4	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	2830	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Manganese	343	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.019	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Nickel	13.2	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1140	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.12	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.047	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Sodium	155	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.121	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	22.6	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-002-2mm	2015-04-25	EPA6020A	Sediment	Zinc	74.7	TRUE	mg/kg	48.57774651	38.22494723	-256.9599915	423029	5401055	OU 1 South	1.0422	-0.4397	0.5852	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	12600	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.25	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	2.75	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Barium	178	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.381	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	0.303	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2790	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Chromium	17.1	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	5.1	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Copper	14.8	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Iron	12900	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Lead	7.49	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	2880	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Manganese	274	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.008	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Nickel	14.2	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1160	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.11	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.043	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Sodium	169	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.117	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	23.6	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-02	SDU-03-COR-02-003-2mm	2015-04-25	EPA6020A	Sediment	Zinc	55.4	TRUE	mg/kg	44.15675297	41.69749075	-256.9599915	423029	5401055	OU 1 South	2.5354	0.4018	0.6273	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	10600	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.287	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	3.22	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Barium	176	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.334	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	0.407	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2660	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Chromium	18.1	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	5.27	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Copper	12.8	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Iron	13700	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Lead	22.2	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	3060	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Manganese	246	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.019	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Nickel	15.4	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1380	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.13	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.067	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Sodium	126	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.126	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	26.6	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-001-2mm	2015-04-25	EPA6020A	Sediment	Zinc	79.3	TRUE	mg/kg	46.35140644	37.95352629	-285.5599976	422914	5400965	OU 1 South	1.7312	-0.4385	0.7961	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	12200	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.189	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	2.49	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Barium	172	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.361	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	0.184	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2590	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Chromium	19.8	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	5.71	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Copper	12.6	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Iron	15100	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Lead	7.66	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	3330	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Manganese	205	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.008	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Nickel	17.1	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1640	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.1	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.044	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Sodium	136	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.116	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	29.4	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-002-2mm	2015-04-25	EPA6020A	Sediment	Zinc	55.1	TRUE	mg/kg	45.5140665	49.05370844	-285.5599976	422914	5400965	OU 1 South	3.1612	0.2554	0.688	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Aluminum	12100	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Antimony	0.167	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Arsenic	2.89	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Barium	142	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Beryllium	0.375	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Cadmium	0.168	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Calcium	2820	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Chromium	20.7	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Cobalt	6.2	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Copper	16.1	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Iron	15500	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Lead	11.4	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Magnesium	3600	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Manganese	173	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA7471B	Sediment	Mercury	0.008	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Nickel	17.4	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Potassium	1700	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Selenium	0.1	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Silver	0.065	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Sodium	150	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6010C	Sediment	Thallium	0.118	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Vanadium	30.3	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-XRF-04	SDU-03-COR-03-003-2mm	2015-04-25	EPA6020A	Sediment	Zinc	49.2	TRUE	mg/kg	45.0666949	49.89413508	-285.5599976	422914	5400965	OU 1 South	3.1554	0.1073	0.6938	3
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Aluminum	8400	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Antimony	0.367	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Arsenic	3.77	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Barium	126	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Beryllium	0.274	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Cadmium	1	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Calcium	4600	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Chromium	18	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Cobalt	4.75	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Copper	18.7	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Iron	12900	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Lead	144	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Magnesium	3500	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Manganese	170	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA7471B	Sediment	Mercury	0.122	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Nickel	13.8	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Potassium	987	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Selenium	0.16	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Silver	0.19	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Sodium	113	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6010C	Sediment	Thallium	0.168	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Vanadium	26.1	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-A	SDU-03-ICS-A-2mm	2015-04-23	EPA6020A	Sediment	Zinc	152	TRUE	mg/kg	53.93799538	21.96247617	-281.0400085	422978	5401015	OU 1 South	-0.5827	-2.0616	0.7235	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Aluminum	9040	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Antimony	0.356	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Arsenic	4.74	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Barium	146	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Beryllium	0.288	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Cadmium	1.2	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Calcium	10300	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Chromium	16.5	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Cobalt	5.02	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Copper	18.6	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Iron	13200	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Lead	103	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Magnesium	3970	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Manganese	181	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA7471B	Sediment	Mercury	0.077	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Nickel	13.9	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Potassium	1090	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Selenium	0.17	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Silver	0.189	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Sodium	133	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6010C	Sediment	Thallium	0.181	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Vanadium	25.6	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-B	SDU-03-ICS-B-2mm	2015-04-23	EPA6020A	Sediment	Zinc	161	TRUE	mg/kg	50.70634205	21.9116321	-279.3800049	422978	5401017	OU 1 South	-0.5421	-1.8424	-0.2608	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Aluminum	9000	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Antimony	0.374	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Arsenic	4.35	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Barium	140	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Beryllium	0.284	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Cadmium	1.23	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Calcium	4480	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Chromium	19.1	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Cobalt	5.26	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Copper	18.9	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Iron	13400	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Lead	101	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Magnesium	3780	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Manganese	198	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA7471B	Sediment	Mercury	0.068	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Nickel	14.1	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Potassium	1070	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Selenium	0.18	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Silver	0.157	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Sodium	110	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6010C	Sediment	Thallium	0.176	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Vanadium	26.2	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-03-ICS-C	SDU-03-ICS-C-2mm	2015-04-24	EPA6020A	Sediment	Zinc	161	TRUE	mg/kg	51.58963941	17.05434231	-276.9299927	422996	5401031	OU 1 South	-0.2547	-1.7721	0.6234	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	8070	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Antimony	0.492	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	12.7	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Barium	88.6	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.312	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	0.493	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Calcium	16800	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Chromium	29.6	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Cobalt	8.55	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Copper	22.9	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Iron	20000	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Lead	24.7	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	7870	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Manganese	346	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.021	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Nickel	30.8	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Potassium	955	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.39	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Silver	0.183	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Sodium	153	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.093	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	31.9	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-001-2mm	2015-05-04	EPA6020A	Sediment	Zinc	101	TRUE	mg/kg	58.67648584	14.04418629	-225.0800018	422691	5400782	OU 1 South	2.0151	-0.5853	-1.2506	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	9130	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Antimony	0.605	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	10.3	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Barium	75.8	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.303	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	0.409	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Calcium	20800	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Chromium	35.3	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Cobalt	9.05	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Copper	21.3	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Iron	22500	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Lead	25.4	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	9070	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Manganese	360	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.024	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Nickel	30.7	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Potassium	895	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.3	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Silver	0.113	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Sodium	197	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.082	FALSE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	35.7	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-01	SDU-04-COR-01-002-2mm	2015-05-04	EPA6020A	Sediment	Zinc	99.6	TRUE	mg/kg	58.92911163	4.275486538	-225.0800018	422691	5400782	OU 1 South	2.2943	-0.4349	-1.1735	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	6290	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Antimony	0.328	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	5.41	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Barium	83.3	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.261	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	0.416	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Calcium	9490	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Chromium	18.6	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Cobalt	5.52	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Copper	16.3	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Iron	14900	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Lead	18.3	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	5310	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Manganese	223	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.021	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Nickel	16.1	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Potassium	998	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.16	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Silver	0.144	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Sodium	153	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.096	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	27.6	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-001-2mm	2015-05-04	EPA6020A	Sediment	Zinc	87	TRUE	mg/kg	32.73270284	5.097063216	-155.2400055	422631	5400686	OU 1 South	1.7007	-0.6348	-0.7022	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	6440	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Antimony	0.349	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	5.83	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Barium	74.2	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.222	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	0.377	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Calcium	9440	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Chromium	16.7	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Cobalt	5.97	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Copper	17.3	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Iron	15100	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Lead	21	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	5540	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Manganese	222	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.019	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Nickel	16.6	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Potassium	894	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.24	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Silver	0.145	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Sodium	127	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.086	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	26.7	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-002-2mm	2015-05-04	EPA6020A	Sediment	Zinc	79.7	TRUE	mg/kg	55.41453429	6.775844422	-155.2400055	422631	5400686	OU 1 South	1.7321	-0.6517	-0.8224	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	7030	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Antimony	0.34	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	5.45	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Barium	66.6	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.237	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	0.367	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Calcium	9980	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Chromium	21.4	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Cobalt	5.99	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Copper	20.1	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Iron	15900	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Lead	16.4	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	6190	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Manganese	246	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.012	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Nickel	19.2	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Potassium	889	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.2	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Silver	0.123	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Sodium	132	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.092	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	30	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-03	SDU-04-COR-02-003-2mm	2015-05-04	EPA6020A	Sediment	Zinc	78.3	TRUE	mg/kg	56.56758385	3.1632858	-155.2400055	422631	5400686	OU 1 South	2.2082	-0.4503	-0.7074	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	6140	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Antimony	2.23	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	4.93	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Barium	149	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.244	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	1.6	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Calcium	16100	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Chromium	19.2	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Cobalt	5.32	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Copper	57.2	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Iron	16900	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Lead	76.8	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	9530	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Manganese	239	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.081	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Nickel	13.5	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Potassium	924	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.36	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Silver	0.529	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Sodium	145	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.144	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	27.3	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-001-2mm	2015-05-04	EPA6020A	Sediment	Zinc	626	TRUE	mg/kg	38.75540827	3.544140661	-141.6399994	422595	5400614	OU 1 South	-1.5106	-1.5087	-0.8927	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	5040	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6010C	Sediment	Antimony	2.7	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	4.97	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Barium	161	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.204	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	2.24	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6010C	Sediment	Calcium	23400	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Chromium	16.2	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Cobalt	5.22	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Copper	67.1	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Lead	81.7	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	11900	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6010C	Sediment	Manganese	265	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.055	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Nickel	12.6	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6010C	Sediment	Potassium	869	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.29	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6010C	Sediment	Silver	0.847	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6010C	Sediment	Sodium	128	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.125	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	23	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-002-2mm	2015-05-04	EPA6020A	Sediment	Zinc	849	TRUE	mg/kg	46.86907021	1.667831819	-141.6399994	422595	5400614	OU 1 South	-2.0957	-1.4596	-1.5151	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	5880	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Antimony	2.58	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	5.41	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Barium	194	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.275	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	2.03	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Calcium	17700	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Chromium	18.2	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Cobalt	5.85	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Copper	69.3	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Iron	16900	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Lead	93.7	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	9890	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Manganese	283	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.075	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Nickel	14.8	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Potassium	1080	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.32	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Silver	0.522	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Sodium	132	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.175	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	23.5	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-XRF-04	SDU-04-COR-03-003-2mm	2015-05-04	EPA6020A	Sediment	Zinc	721	TRUE	mg/kg	86.96751998	10.9379743	-141.6399994	422595	5400614	OU 1 South	-1.9122	-1.4511	-1.0137	2
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Aluminum	7550	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Antimony	0.721	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Arsenic	7.7	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Barium	102	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Beryllium	0.262	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Cadmium	0.709	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Calcium	14200	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Chromium	22.9	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Cobalt	8.32	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Copper	26.9	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Iron	18200	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Lead	32.6	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Magnesium	7770	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Manganese	294	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA7471B	Sediment	Mercury	0.037	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Nickel	23.3	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Potassium	953	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Selenium	0.4	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Silver	0.188	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Sodium	133	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6010C	Sediment	Thallium	0.108	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Vanadium	31.4	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-04-ICS	SDU-04-ICS-2mm	2015-05-02	EPA6020A	Sediment	Zinc	192	TRUE	mg/kg	48.43812575	7.258710453	-164.7200012	422642	5400699	OU 1 South	0.9389	-0.9439	-0.8985	3
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Aluminum	9060	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Antimony	2.49	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Arsenic	12.2	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Barium	549	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Beryllium	0.427	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Cadmium	9.85	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Calcium	32200	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Chromium	27.5	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Cobalt	8.25	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Copper	125	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Iron	27700	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Lead	458	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Magnesium	22000	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Manganese	341	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA7471B	Sediment	Mercury	0.787	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Nickel	23	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Potassium	1340	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Selenium	1.15	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Silver	1.56	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Sodium	136	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6010C	Sediment	Thallium	0.693	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Vanadium	35	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-002-2mm	2015-05-01	EPA6020A	Sediment	Zinc	1950	TRUE	mg/kg	58.02195589	41.9579011	-199.1199951	424294	5395317	OU 1 South	-4.0866	-3.0479	-1.4813	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Aluminum	6040	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Antimony	2.07	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Arsenic	12.1	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Barium	636	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Beryllium	0.298	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Cadmium	13.9	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Calcium	47500	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Chromium	15.3	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Cobalt	5.51	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Copper	104	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Iron	25600	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Lead	725	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Magnesium	26100	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Manganese	393	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA7471B	Sediment	Mercury	1.86	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Nickel	15.2	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Potassium	993	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Selenium	0.8	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Silver	0.83	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Sodium	132	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6010C	Sediment	Thallium	0.378	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Vanadium	27.9	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-01	SDU-05-COR-01-003-2mm	2015-05-01	EPA6020A	Sediment	Zinc	3220	TRUE	mg/kg	70.75924076	29.16083916	-199.1199951	424294	5395317	OU 1 South	-5.7665	-3.434	-2.4201	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Aluminum	11500	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Antimony	4.69	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Arsenic	14.2	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Barium	444	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Beryllium	0.569	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Cadmium	10.7	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Calcium	18900	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Chromium	37	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Cobalt	10.4	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Copper	188	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Iron	24600	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Lead	578	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Magnesium	14800	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Manganese	267	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA7471B	Sediment	Mercury	1.69	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Nickel	29.1	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Potassium	1800	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Selenium	1.45	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Silver	2.75	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Sodium	162	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6010C	Sediment	Thallium	0.963	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Vanadium	38.9	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-001-2mm	2015-05-01	EPA6020A	Sediment	Zinc	1800	TRUE	mg/kg	30.24710035	69.58144226	-349.9299927	424607	5394942	OU 1 South	-3.9065	-3.5508	-0.2851	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Aluminum	5600	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Antimony	2.2	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Arsenic	13.1	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Barium	895	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Beryllium	0.292	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Cadmium	8.96	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Calcium	61100	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Chromium	18.3	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Cobalt	5.1	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Copper	76.7	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Iron	25400	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Lead	513	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Magnesium	33200	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Manganese	362	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA7471B	Sediment	Mercury	1.01	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Nickel	17.5	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Potassium	1060	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Selenium	0.79	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Silver	0.817	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Sodium	127	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6010C	Sediment	Thallium	0.468	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Vanadium	34	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-09	SDU-05-COR-02-003-2mm	2015-05-01	EPA6020A	Sediment	Zinc	2220	TRUE	mg/kg	55.30999413	44.6313319	-349.9299927	424607	5394942	OU 1 South	-5.0815	-3.2098	-3.1919	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Aluminum	11600	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Antimony	2.19	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Arsenic	9.41	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Barium	605	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Beryllium	0.527	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Cadmium	9.53	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Calcium	23900	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Chromium	32.7	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Cobalt	9.8	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Copper	114	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Iron	24200	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Lead	405	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Magnesium	17400	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Manganese	238	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA7471B	Sediment	Mercury	0.912	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Nickel	29.9	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Potassium	1890	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Selenium	4.2	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Silver	1.67	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Sodium	192	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6010C	Sediment	Thallium	0.857	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Vanadium	40.5	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-001-2mm	2015-04-30	EPA6020A	Sediment	Zinc	1910	TRUE	mg/kg	32.53357941	67.31262176	-461.8699951	424607	5395192	OU 1 South	-3.6436	-3.2967	-0.7401	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Aluminum	6100	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Antimony	2.11	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Arsenic	14.1	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Barium	877	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Beryllium	0.319	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Cadmium	10.2	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Calcium	56200	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Chromium	20.7	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Cobalt	5.74	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Copper	75.2	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Iron	25400	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Lead	511	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Magnesium	34000	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Manganese	237	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA7471B	Sediment	Mercury	1.58	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Nickel	21	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Potassium	1100	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Selenium	2.23	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Silver	0.746	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Sodium	130	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6010C	Sediment	Thallium	0.511	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Vanadium	36.4	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-002-2mm	2015-04-30	EPA6020A	Sediment	Zinc	2180	TRUE	mg/kg	44.8403935	55.08933949	-461.8699951	424607	5395192	OU 1 South	-5.007	-3.7636	-3.0358	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Aluminum	5970	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Antimony	3.61	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Arsenic	19.9	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Barium	1130	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Beryllium	0.349	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Cadmium	14.9	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Calcium	61400	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Chromium	19.3	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Cobalt	5.19	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Copper	78.6	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Iron	26700	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Lead	803	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Magnesium	35700	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Manganese	257	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA7471B	Sediment	Mercury	1.32	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Nickel	17.2	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Potassium	1060	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Selenium	1.95	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Silver	0.986	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Sodium	120	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6010C	Sediment	Thallium	0.362	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Vanadium	36.4	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-XRF-04	SDU-05-COR-03-003-2mm	2015-04-30	EPA6020A	Sediment	Zinc	2230	TRUE	mg/kg	41.94519723	58.02469136	-461.8699951	424607	5395192	OU 1 South	-5.5623	-3.8502	-3.3847	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Aluminum	8620	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Antimony	2.32	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Arsenic	10.6	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Barium	425	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Beryllium	0.368	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Cadmium	7.04	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Calcium	23700	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Chromium	25.6	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Cobalt	7.49	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Copper	109	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Iron	23100	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Lead	323	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Magnesium	15500	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Manganese	332	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA7471B	Sediment	Mercury	0.646	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Nickel	20.3	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Potassium	1230	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Selenium	0.9	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Silver	1.09	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Sodium	129	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6010C	Sediment	Thallium	0.562	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Vanadium	33.4	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-05-ICS	SDU-05-ICS-2mm	2015-04-24	EPA6020A	Sediment	Zinc	1770	TRUE	mg/kg	66.83138362	27.8741428	-294.2000122	424452	5395124	OU 1 South	-3.7279	-2.8107	-1.1322	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	7760	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Antimony	0.143	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	5.79	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Barium	85.7	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.303	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	0.264	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Calcium	12300	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Chromium	20.6	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	6.83	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Copper	16	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Iron	14600	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Lead	9.36	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	5080	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Manganese	237	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.007	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Nickel	17	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1060	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.1	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.097	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Sodium	117	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.134	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	31.7	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-001-2mm	2015-04-29	EPA6020A	Sediment	Zinc	56.5	TRUE	mg/kg	49.04234393	50.67812403	-731.9899902	425306	5393814	OU 1 South	2.8732	-0.0477	-1.0331	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	7140	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Antimony	0.13	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	5.56	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Barium	77.9	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.287	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	0.203	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Calcium	12700	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Chromium	19.4	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	6.33	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Copper	14.7	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Iron	14000	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Lead	6.95	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	5440	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Manganese	264	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.005	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Nickel	16	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1030	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.09	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.07	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Sodium	131	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.12	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	31.8	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-002-2mm	2015-04-29	EPA6020A	Sediment	Zinc	45.2	TRUE	mg/kg	52.50228403	47.23378337	-731.9899902	425306	5393814	OU 1 South	3.2646	0.2463	-1.2364	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	6560	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Antimony	0.123	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	5.61	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Barium	77.1	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.255	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	0.2	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Calcium	14100	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Chromium	18	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	6	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Copper	13.9	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Iron	12900	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Lead	6.29	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	5080	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Manganese	256	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.005	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Nickel	15	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1020	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.08	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.08	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Sodium	114	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.112	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	28.4	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-04	SDU-06-COR-01-003-2mm	2015-04-29	EPA6020A	Sediment	Zinc	42	TRUE	mg/kg	62.46075949	37.53924051	-731.9899902	425306	5393814	OU 1 South	3.1741	0.2352	-1.4777	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	5750	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Antimony	0.086	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	2.1	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Barium	48.3	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.201	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	0.274	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Calcium	2510	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Chromium	15.5	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	3.87	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Copper	7.51	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Iron	11200	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Lead	16.8	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	2250	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Manganese	103	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.007	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Nickel	9.06	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Potassium	780	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.08	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.033	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Sodium	86.1	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.219	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	26.2	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-001-2mm	2015-04-29	EPA6020A	Sediment	Zinc	65.6	TRUE	mg/kg	93.79254292	6.105862034	-763.460022	425224	5394069	OU 1 South	2.3565	-0.6147	0.9513	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	6890	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Antimony	0.128	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	2.67	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Barium	61.1	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.235	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	0.494	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Calcium	2510	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Chromium	16.4	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	4.82	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Copper	10.6	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Iron	11600	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Lead	26.3	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	2990	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Manganese	144	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.028	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Nickel	11.7	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Potassium	991	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.09	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.063	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Sodium	97.6	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.38	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	24.8	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-002-2mm	2015-04-29	EPA6020A	Sediment	Zinc	111	TRUE	mg/kg	84.4629092	15.44699169	-763.460022	425224	5394069	OU 1 South	1.4804	-1.2669	1.1546	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	7500	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Antimony	0.132	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	2.91	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Barium	67.3	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.247	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	1	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Calcium	2650	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Chromium	16	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	4.86	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Copper	10.5	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Iron	12500	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Lead	50	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	2960	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Manganese	126	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.056	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Nickel	12.1	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1140	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.1	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.065	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Sodium	103	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.291	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	24	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-02	SDU-06-COR-02-003-2mm	2015-04-29	EPA6020A	Sediment	Zinc	194	TRUE	mg/kg	77.75722068	22.08860109	-763.460022	425224	5394069	OU 1 South	0.5364	-1.9468	1.3542	2
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	8990	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Antimony	0.217	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	8.39	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Barium	62.5	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.262	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	0.476	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Calcium	3170	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Chromium	17	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	5.79	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Copper	17.3	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Iron	15300	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Lead	15.6	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	4650	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Manganese	178	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.02	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Nickel	14.7	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Potassium	1110	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.18	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.074	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Sodium	126	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.182	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	35.2	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-001-2mm	2015-04-29	EPA6020A	Sediment	Zinc	84	TRUE	mg/kg	19.50783886	2.381424886	-671.5	425126	5394174	OU 1 South	2.3338	-1.1156	0.1913	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	5480	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Antimony	0.123	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	2.01	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Barium	36.8	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.177	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	0.341	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Calcium	2010	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Chromium	11.9	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	3.36	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Copper	7.4	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Iron	10800	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Lead	29.2	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	2230	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Manganese	84.8	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.023	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Nickel	8.57	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Potassium	689	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.1	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.037	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Sodium	67	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.127	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	23.1	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-002-2mm	2015-04-29	EPA6020A	Sediment	Zinc	90.4	TRUE	mg/kg	67.98949813	2.413410078	-671.5	425126	5394174	OU 1 South	1.4623	-1.5525	1.2395	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Aluminum	7420	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Antimony	0.121	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Arsenic	2.56	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Barium	48.5	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Beryllium	0.203	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Cadmium	0.334	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Calcium	2530	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Chromium	14.4	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Cobalt	4.38	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Copper	9.71	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Iron	12300	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Lead	23.2	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Magnesium	3300	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Manganese	107	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA7471B	Sediment	Mercury	0.026	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Nickel	11	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Potassium	948	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Selenium	0.08	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Silver	0.028	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Sodium	78.4	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6010C	Sediment	Thallium	0.114	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Vanadium	29.8	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-XRF-01	SDU-06-COR-03-003-2mm	2015-04-29	EPA6020A	Sediment	Zinc	86.9	TRUE	mg/kg	76.72405114	2.124232357	-671.5	425126	5394174	OU 1 South	1.9278	-1.5094	0.9296	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Aluminum	6910	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Antimony	0.143	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Arsenic	3.79	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Barium	75.5	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Beryllium	0.251	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Cadmium	0.429	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Calcium	3760	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Chromium	15.6	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Cobalt	5.37	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Copper	12.5	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Iron	12900	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Lead	17.4	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Magnesium	3290	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Manganese	182	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA7471B	Sediment	Mercury	0.021	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Nickel	12.8	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Potassium	1240	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Selenium	0.11	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Silver	0.066	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Sodium	106	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6010C	Sediment	Thallium	0.182	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Vanadium	23.7	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-A	SDU-06-ICS-A-2mm	2015-04-27	EPA6020A	Sediment	Zinc	65	TRUE	mg/kg	76.54472794	21.13946101	-724.8800049	425255	5393921	OU 1 South	1.9439	-0.8081	0.4021	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6010C	Sediment	Aluminum	6490	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Arsenic	3.7	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Barium	71.4	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Beryllium	0.253	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Cadmium	0.506	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6010C	Sediment	Calcium	3210	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Chromium	15.8	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Cobalt	5.02	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Copper	11.9	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6010C	Sediment	Iron	13100	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Lead	20.3	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6010C	Sediment	Magnesium	3160	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6010C	Sediment	Manganese	162	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA7471B	Sediment	Mercury	0.019	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Nickel	12.3	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6010C	Sediment	Potassium	1060	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6010C	Sediment	Selenium	0.12	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6010C	Sediment	Silver	0.062	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6010C	Sediment	Sodium	102	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6010C	Sediment	Thallium	0.253	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Vanadium	24.7	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-06-ICS-B	SDU-06-ICS-B-2mm	2015-04-27	EPA6020A	Sediment	Zinc	74.4	TRUE	mg/kg	70.33767833	15.47777892	-720.4099731	425240	5393940	OU 1 South	1.7629	-0.9364	0.601	3
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	12800	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Antimony	2.43	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	13.9	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Barium	450	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.555	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	7.06	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Calcium	10700	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Chromium	32.4	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	10.6	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Copper	129	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Iron	25100	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Lead	412	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	9490	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Manganese	280	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA7471B	Sediment	Mercury	0.955	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Nickel	26.7	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1650	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1.03	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Silver	1.75	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Sodium	186	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.72	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	38.9	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Zinc	1190	TRUE	mg/kg	38.64563803	58.14492114	-458.8099976	425109	5392671	OU 1 South	-3.1435	-2.881	0.1923	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	10100	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Antimony	2.06	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	16.9	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Barium	772	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.465	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	10.9	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Calcium	25900	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Chromium	27.3	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	8.76	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Copper	80.8	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Iron	26500	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Lead	556	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	18000	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Manganese	282	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.33	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Nickel	25.2	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1490	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1.03	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Silver	0.985	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Sodium	165	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.705	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	38.5	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Zinc	1620	TRUE	mg/kg	38.90072001	56.90092283	-458.8099976	425109	5392671	OU 1 South	-4.1178	-3.4051	-1.4703	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	8170	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Antimony	3.13	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	21.4	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Barium	817	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.396	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	13.4	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Calcium	40100	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Chromium	21	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	7.35	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Copper	78.8	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Iron	26100	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Lead	732	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	24700	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Manganese	295	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.26	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Nickel	20.2	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1280	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Selenium	0.94	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Silver	0.915	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Sodium	141	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.563	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	35.7	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-04	SDU-07-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Zinc	2030	TRUE	mg/kg	37.10941476	62.89058524	-458.8099976	425109	5392671	OU 1 South	-4.8243	-3.6251	-2.4171	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	13400	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Antimony	3.04	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	14.6	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Barium	637	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.638	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	11.1	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Calcium	16600	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Chromium	37	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	10.5	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Copper	139	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Iron	27900	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Lead	566	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	13900	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Manganese	391	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.68	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Nickel	29.4	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1800	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1.59	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Silver	1.91	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Sodium	193	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.665	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	42.6	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Zinc	1500	TRUE	mg/kg	8.90567538	91.09432462	-548.1599731	425189	5393031	OU 1 South	-3.7533	-3.176	-0.2039	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	8590	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Antimony	2.02	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	15.3	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Barium	1240	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.43	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	9.91	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Calcium	44500	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Chromium	27	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	7.36	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Copper	80.1	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Iron	25800	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Lead	530	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	25800	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Manganese	419	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.43	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Nickel	23.8	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1370	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1.02	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Silver	1	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Sodium	165	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.557	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	40.3	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Zinc	1560	TRUE	mg/kg	19.76708861	80.23291139	-548.1599731	425189	5393031	OU 1 South	-4.5365	-3.1456	-2.4056	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	7420	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Antimony	5.51	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	27.8	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Barium	1240	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.412	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	13.3	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Calcium	52300	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Chromium	23	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	7.16	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Copper	87.1	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Iron	27600	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Lead	845	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	28600	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Manganese	499	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.35	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Nickel	20.5	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1250	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1.01	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Silver	1.19	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Sodium	137	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.586	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	36.9	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-01	SDU-07-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Zinc	2270	TRUE	mg/kg	29.62662338	70.37337662	-548.1599731	425189	5393031	OU 1 South	-5.1892	-3.2496	-2.9302	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	15100	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Antimony	3.67	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	13.8	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Barium	493	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.693	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	8.6	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Calcium	10500	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Chromium	41.1	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	12	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Copper	201	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Iron	28700	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Lead	448	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	10100	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Manganese	395	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.48	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Nickel	30	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Potassium	2030	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1.57	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Silver	2.86	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Sodium	222	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.779	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	44.2	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Zinc	1380	TRUE	mg/kg	6.252587992	93.74741201	-369.6199951	425038	5392795	OU 1 South	-3.2363	-2.7892	0.6563	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	7230	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Antimony	2.13	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	15.7	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Barium	1450	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.386	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	10	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Calcium	53100	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Chromium	23.7	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	6.4	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Copper	72.1	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Iron	26100	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Lead	543	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	30300	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Manganese	432	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.36	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Nickel	22.7	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1220	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Silver	0.844	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Sodium	153	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.553	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	39.2	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-XRF-03	SDU-07-COR-03-003-2mm	2015-05-06	EPA6020A	Sediment	Zinc	1660	TRUE	mg/kg	30.67612688	69.32387312	-369.6199951	425038	5392795	OU 1 South	-4.8505	-3.1524	-2.9385	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	10400	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Antimony	1.63	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	10.8	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Barium	305	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.443	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	4.52	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Calcium	8830	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Chromium	26.9	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Cobalt	8.87	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Copper	86.7	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Iron	21300	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Lead	228	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	8100	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Manganese	288	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.666	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Nickel	23	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Potassium	1380	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.77	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Silver	1.1	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Sodium	153	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.411	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	35.4	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-A	SDU-07-ICS-A-2mm	2015-05-04	EPA6020A	Sediment	Zinc	634	TRUE	mg/kg	52.26652676	38.81427072	-478.6400146	425146	5392845	OU 1 South	-2.3913	-2.6487	0.1795	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Aluminum	7800	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Antimony	0.962	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6020A	Sediment	Arsenic	8.16	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6020A	Sediment	Barium	173	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6020A	Sediment	Beryllium	0.31	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6020A	Sediment	Cadmium	2.32	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Calcium	6540	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6020A	Sediment	Chromium	20.6	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6020A	Sediment	Copper	45.8	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Iron	16900	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6020A	Sediment	Lead	112	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Magnesium	6160	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Manganese	232	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA7471B	Sediment	Mercury	0.297	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6020A	Sediment	Nickel	17.9	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Potassium	1020	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Selenium	0.39	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Silver	0.544	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Sodium	116	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6010C	Sediment	Thallium	0.26	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6020A	Sediment	Vanadium	30.2	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-B	SDU-07-ICS-B-2mm	2015-05-04	EPA6020A	Sediment	Zinc	323	TRUE	mg/kg	62.01520172	18.42720717	-509.8399963	425176	5392860	OU 1 South	-1.4032	-2.3586	0.0951	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Aluminum	10000	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Antimony	1.29	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Arsenic	9.46	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Barium	275	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Beryllium	0.37	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Cadmium	3.77	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Calcium	9350	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Chromium	21.6	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Cobalt	7.39	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Copper	59	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Iron	20200	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Lead	200	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Magnesium	8350	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Manganese	270	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA7471B	Sediment	Mercury	0.478	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Nickel	19.8	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Potassium	1240	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Selenium	0.56	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Silver	0.758	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Sodium	136	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6010C	Sediment	Thallium	0.339	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Vanadium	32.3	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-07-ICS-C	SDU-07-ICS-C-2mm	2015-05-05	EPA6020A	Sediment	Zinc	514	TRUE	mg/kg	53.28810592	35.00382974	-469.3900146	425138	5392810	OU 1 South	-2.2064	-2.6277	-0.1741	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	10000	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Antimony	3.82	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	11.4	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Barium	425	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.475	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	4.96	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Calcium	21500	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Chromium	29.4	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	9.54	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Copper	146	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Iron	26700	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Lead	327	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	13600	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Manganese	400	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.01	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Nickel	22.2	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1490	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1.01	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Silver	1.73	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Sodium	176	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.459	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	32.9	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-001-2mm	2015-05-06	EPA6020A	Sediment	Zinc	1410	TRUE	mg/kg	66.2220905	30.57696107	236.1300049	422995	5401668	OU 1 South	-3.3893	-2.4127	-0.6632	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	11200	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Antimony	4.37	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	17.3	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Barium	685	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.549	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	10.3	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Calcium	34400	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Chromium	36.2	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	10.4	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Copper	182	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Iron	30500	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Lead	674	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	18100	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Manganese	438	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA7471B	Sediment	Mercury	2.93	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Nickel	26.8	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1650	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Selenium	2.14	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Silver	2.24	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Sodium	169	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.659	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	37.5	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-002-2mm	2015-05-06	EPA6020A	Sediment	Zinc	2060	TRUE	mg/kg	47.66495287	48.3933162	236.1300049	422995	5401668	OU 1 South	-4.4772	-3.1683	-1.1185	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	7720	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Antimony	3.48	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	23.4	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Barium	920	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.39	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	14	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Calcium	37100	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Chromium	27.4	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	7.64	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Copper	117	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Iron	31300	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Lead	835	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	20300	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Manganese	502	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.8	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Nickel	23.9	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1260	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1.53	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Silver	1.42	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Sodium	158	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.55	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	35.3	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-04	SDU-08-COR-01-003-2mm	2015-05-06	EPA6020A	Sediment	Zinc	2350	TRUE	mg/kg	46.51634965	52.51122035	236.1300049	422995	5401668	OU 1 South	-5.095	-3.0675	-2.0149	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	8660	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Antimony	4.76	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	10.5	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Barium	420	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.418	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	4.22	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Calcium	26600	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Chromium	28.6	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	9.97	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Copper	167	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Iron	28000	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Lead	250	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	15600	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Manganese	412	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.01	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Nickel	19.7	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1380	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Selenium	0.77	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Silver	1.9	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Sodium	184	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.432	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	32.7	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-001-2mm	2015-05-06	EPA6020A	Sediment	Zinc	1600	TRUE	mg/kg	65.91045975	33.76831961	231.5200043	423032	5401708	OU 1 South	-3.4277	-2.1071	-0.9756	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	10600	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Antimony	8.16	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	18.7	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Barium	570	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.488	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	9.55	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Calcium	15700	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Chromium	38.3	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	11.4	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Copper	365	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Iron	33900	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Lead	666	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	10600	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Manganese	421	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA7471B	Sediment	Mercury	1.69	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Nickel	26	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1600	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Selenium	2.42	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Silver	2.77	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Sodium	195	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.948	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	34.2	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-002-2mm	2015-05-06	EPA6020A	Sediment	Zinc	2780	TRUE	mg/kg	58.56226188	41.35752958	231.5200043	423032	5401708	OU 1 South	-4.5026	-2.3999	-0.0498	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	10800	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Antimony	7.03	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	21	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Barium	580	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.485	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Calcium	15700	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Chromium	39.3	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	11.5	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Copper	333	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Iron	36100	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Lead	752	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	10800	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Manganese	460	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA7471B	Sediment	Mercury	2.57	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Nickel	27.4	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1660	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Selenium	3.12	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Silver	2.25	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Sodium	166	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.899	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	35.1	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-R03	SDU-08-COR-02-003-2mm	2015-05-06	EPA6020A	Sediment	Zinc	2740	TRUE	mg/kg	53.40494528	46.52411836	231.5200043	423032	5401708	OU 1 South	-4.6147	-2.6606	-0.0502	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	8360	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Antimony	6.42	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	19.9	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Barium	581	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.408	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	7.44	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Calcium	32600	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Chromium	30	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	10.5	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Copper	210	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Iron	34000	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Lead	398	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	18900	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Manganese	462	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA7471B	Sediment	Mercury	0.767	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Nickel	21.4	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Potassium	1210	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Selenium	1.03	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Silver	2.1	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Sodium	197	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.656	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	34.4	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-001-2mm	2015-05-06	EPA6020A	Sediment	Zinc	2100	TRUE	mg/kg	59.83176645	35.45769421	190.0399933	423209	5401902	OU 1 South	-4.0493	-2.0849	-1.5648	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Aluminum	6530	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Antimony	0.519	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Arsenic	5.74	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Barium	149	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Beryllium	0.299	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Cadmium	1.14	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Calcium	4330	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Chromium	16.6	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Cobalt	5.83	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Copper	20.5	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Iron	16500	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Lead	26.6	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Magnesium	4180	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Manganese	227	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA7471B	Sediment	Mercury	0.04	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Nickel	16	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Potassium	941	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Selenium	0.25	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Silver	0.131	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Sodium	95.2	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6010C	Sediment	Thallium	0.208	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Vanadium	28	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-XRF-01	SDU-08-COR-03-002-2mm	2015-05-06	EPA6020A	Sediment	Zinc	164	TRUE	mg/kg	74.90879611	24.62505067	190.0399933	423209	5401902	OU 1 South	0.4353	-1.1471	0.1227	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Aluminum	10100	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Antimony	3.12	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Arsenic	12.4	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Barium	481	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Beryllium	0.453	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Cadmium	6.59	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Calcium	44300	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Chromium	28.2	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Cobalt	9.16	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Copper	137	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Iron	26200	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Lead	414	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Magnesium	16700	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Manganese	404	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA7471B	Sediment	Mercury	0.975	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Nickel	21.9	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Potassium	1430	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Selenium	1.24	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Silver	1.66	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Sodium	150	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6010C	Sediment	Thallium	0.516	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Vanadium	32.8	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-08-ICS	SDU-08-ICS-2mm	2015-05-05	EPA6020A	Sediment	Zinc	1480	TRUE	mg/kg	44.11791716	37.90063367	197.3099976	423105	5401797	OU 1 South	-3.8226	-2.6893	-1.5061	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Aluminum	6700	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Antimony	0.76	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Arsenic	6.72	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Barium	203	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Beryllium	0.253	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Cadmium	1.45	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Calcium	21400	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Chromium	19.4	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Cobalt	6.13	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Copper	27.1	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Iron	16000	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Lead	73.7	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Magnesium	7810	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Manganese	212	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA7471B	Sediment	Mercury	0.078	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Nickel	17.5	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Potassium	977	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Selenium	0.26	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Silver	0.2	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Sodium	113	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6010C	Sediment	Thallium	0.216	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Vanadium	26.6	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-09A-ICS	SDU-09-ICS-A-2mm	2015-04-30	EPA6020A	Sediment	Zinc	331	TRUE	mg/kg	66.83016554	9.166155733	95.0899963	422384	5400979	OU 1 South	-0.9928	-1.6934	-1.4974	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Aluminum	6980	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Antimony	0.82	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Arsenic	8.72	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Barium	178	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Beryllium	0.271	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Cadmium	1.5	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Calcium	11000	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Chromium	17.6	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Cobalt	6.28	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Copper	29.4	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Iron	16600	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Lead	82.2	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Magnesium	7110	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Manganese	216	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA7471B	Sediment	Mercury	0.09	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Nickel	16	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Potassium	1060	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Selenium	0.24	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Silver	0.23	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Sodium	96.9	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6010C	Sediment	Thallium	0.241	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Vanadium	26	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015 Bossburg Flat Sediment and Soil Study	SDU-10-ICS	SDU-10-ICS-2mm	2015-04-27	EPA6020A	Sediment	Zinc	370	TRUE	mg/kg	66.69820246	8.079470199	260	422175	5400717	OU 1 South	-0.9507	-1.8517	-0.9179	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Aluminum	4910	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Antimony	9.5	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Arsenic	6	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Barium	143	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Cadmium	1.39	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Calcium	3550	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Chromium	20.8	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Cobalt	5.1	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Copper	95.9	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Iron	20900	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Lead	160	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Magnesium	2720	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Manganese	251	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Mercury	0.23	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Nickel	10.5	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Potassium	785	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Selenium	0.25	FALSE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Silver	0.5	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Sodium	121	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Thallium	0.3	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Vanadium	31.1	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-1_2015-10-01	2015-dep-exp-1	2015-10-01	Unk	Sediment	Zinc	645	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.247	-1.0507	1.1436	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Aluminum	4710	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Antimony	17.8	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Arsenic	5.5	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Barium	130	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Beryllium	0.1	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Cadmium	0.54	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Calcium	5520	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Chromium	19.1	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Cobalt	6.3	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Copper	161	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Iron	21800	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Lead	141	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Magnesium	2620	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Manganese	338	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Mercury	0.13	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Nickel	8.4	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Potassium	809	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Selenium	0.25	FALSE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Silver	0.6	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Sodium	175	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Vanadium	22.3	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-2_2015-10-01	2015-dep-exp-2	2015-10-01	Unk	Sediment	Zinc	1190	TRUE	mg/kg				454251	5436922	LCR below Trail	-2.3275	0.4952	0.5786	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Aluminum	5410	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Antimony	76	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Arsenic	14.1	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Barium	273	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Cadmium	0.57	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Calcium	10500	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Chromium	36.6	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Cobalt	11.2	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Copper	514	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Iron	48700	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Lead	136	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Magnesium	2560	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Manganese	743	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Mercury	0.12	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Nickel	10.2	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Potassium	885	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Selenium	0.25	FALSE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Silver	3.6	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Sodium	281	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Vanadium	43.6	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-3_2015-10-01	2015-dep-exp-3	2015-10-01	Unk	Sediment	Zinc	2550	TRUE	mg/kg				454902	5434345	LCR below Trail	-2.4183	2.0217	0.4263	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Aluminum	6450	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Antimony	15.2	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Arsenic	5.2	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Barium	118	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Beryllium	0.2	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Cadmium	0.46	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Calcium	5100	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Chromium	22.5	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Cobalt	7.4	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Copper	139	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Iron	26300	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Lead	48.9	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Magnesium	3960	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Manganese	388	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Mercury	0.08	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Nickel	10.1	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Potassium	727	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Selenium	0.25	FALSE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Silver	0.4	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Sodium	207	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Thallium	0.1	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Vanadium	38.9	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-4_2015-10-01	2015-dep-exp-4	2015-10-01	Unk	Sediment	Zinc	770	TRUE	mg/kg				455105	5431787	LCR below Trail	-0.7436	0.5622	0.8063	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Aluminum	5690	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Antimony	18.9	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Arsenic	5.9	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Barium	183	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Beryllium	0.3	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Cadmium	1.12	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Calcium	5460	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Chromium	26.3	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Cobalt	7.2	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Copper	196	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Iron	28100	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Lead	109	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Magnesium	2970	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Manganese	333	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Mercury	0.25	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Nickel	11.6	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Potassium	968	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Selenium	0.6	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Silver	0.9	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Sodium	171	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Thallium	0.2	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Vanadium	29.3	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-5_2015-10-01	2015-dep-exp-5	2015-10-01	Unk	Sediment	Zinc	1160	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.2671	-0.1771	1.199	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Aluminum	4880	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Antimony	15.1	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Arsenic	4.1	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Barium	134	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Beryllium	0.3	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Cadmium	0.52	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Calcium	5420	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Chromium	20.7	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Cobalt	6.6	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Copper	176	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Iron	19000	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Lead	52.8	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Magnesium	2980	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Manganese	339	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Mercury	0.17	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Nickel	9.8	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Potassium	865	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Selenium	0.25	FALSE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Silver	1.1	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Sodium	183	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Thallium	0.2	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Vanadium	20.5	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-6_2015-10-01	2015-dep-exp-6	2015-10-01	Unk	Sediment	Zinc	793	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.6613	0.2272	1.0296	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Aluminum	7790	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Antimony	2.4	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Arsenic	3.6	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Barium	204	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Beryllium	0.3	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Cadmium	2.81	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Calcium	24900	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Chromium	31.2	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Cobalt	7.2	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Copper	36	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Iron	23600	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Lead	91.9	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Magnesium	15400	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Manganese	330	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Mercury	0.14	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Nickel	18.3	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Potassium	1420	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Selenium	0.25	FALSE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Silver	0.5	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Sodium	237	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Thallium	0.2	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Vanadium	38.9	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-exp-7_2015-10-01	2015-dep-exp-7	2015-10-01	Unk	Sediment	Zinc	594	TRUE	mg/kg				454747	5428243	LCR below Trail	-1.129	-1.6632	-0.7289	2
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Aluminum	3860	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Antimony	0.2	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Arsenic	0.9	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Barium	39	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Beryllium	0.1	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Cadmium	0.19	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Calcium	1930	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Chromium	11.9	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Cobalt	3.5	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Copper	5.4	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Iron	10200	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Lead	6.8	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Magnesium	2440	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Manganese	109	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Mercury	0.05	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Nickel	7.9	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Potassium	728	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Selenium	0.25	FALSE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Silver	0.1	FALSE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Sodium	71	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Vanadium	18.5	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-1_2015-10-01	2015-dep-ref-1	2015-10-01	Unk	Sediment	Zinc	59	TRUE	mg/kg				452800	5462839	LCR above Trail	2.1176	-0.8131	1.0813	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Aluminum	3450	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Antimony	0.1	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Arsenic	1	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Barium	36	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Beryllium	0.1	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Cadmium	0.17	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Calcium	1990	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Chromium	10	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Cobalt	2.6	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Copper	5.1	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Iron	8710	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Lead	7.3	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Magnesium	2220	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Manganese	106	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Mercury	0.025	FALSE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Nickel	7.3	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Potassium	559	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Selenium	0.25	FALSE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Silver	0.1	FALSE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Sodium	82	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Vanadium	14.9	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-2_2015-10-01	2015-dep-ref-2	2015-10-01	Unk	Sediment	Zinc	48	TRUE	mg/kg				448802	5450137	LCR above Trail	2.0114	-0.6177	0.7427	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Aluminum	2880	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Antimony	0.2	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Arsenic	0.8	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Barium	27	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Beryllium	0.1	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Cadmium	0.11	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Calcium	1730	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Chromium	15.6	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Cobalt	2.5	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Copper	5.1	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Iron	12000	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Lead	7	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Magnesium	1900	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Manganese	108	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Mercury	0.025	FALSE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Nickel	6.4	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Potassium	421	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Selenium	0.25	FALSE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Silver	0.1	FALSE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Sodium	66	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Vanadium	26.1	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2015–2016 AREMP Teck Trail Operations	2015-dep-ref-3_2015-10-01	2015-dep-ref-3	2015-10-01	Unk	Sediment	Zinc	31	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7369	-0.2444	1.3313	3
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Aluminum	5460	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Antimony	14.4	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Arsenic	8.66	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Barium	166	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Beryllium	0.25	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Cadmium	1.68	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Calcium	4590	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Chromium	21.7	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Cobalt	6.84	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Copper	188	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Iron	20800	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Lead	194	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Magnesium	2950	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Manganese	266	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Mercury	0.133	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Nickel	12.5	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Potassium	951	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Selenium	0.43	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Silver	0.39	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Sodium	175	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Thallium	0.25	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Vanadium	25	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-1_2018-10-01	2018-dep-exp-1	2018-10-01	Unk	Sediment	Zinc	1100	TRUE	mg/kg				450525	5438146	LCR below Trail	-2.5953	-0.6591	0.9863	2
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Aluminum	6600	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Antimony	28.5	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Arsenic	11	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Barium	391	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Beryllium	0.28	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Cadmium	2.15	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Calcium	13000	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Chromium	38.7	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Cobalt	9.98	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Copper	467	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Iron	51900	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Lead	220	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Magnesium	2970	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Manganese	689	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Mercury	0.55	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Nickel	12.9	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Potassium	1100	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Selenium	1.82	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Silver	0.82	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Sodium	254	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Thallium	0.37	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Vanadium	28.5	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-2_2018-10-01	2018-dep-exp-2	2018-10-01	Unk	Sediment	Zinc	3790	TRUE	mg/kg				454251	5436922	LCR below Trail	-3.8517	0.7426	0.665	1
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Aluminum	3850	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Antimony	49.75	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Arsenic	12.12	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Barium	114.5	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Beryllium	0.195	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Cadmium	0.4255	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Calcium	4225	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Chromium	23.25	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Cobalt	5.975	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Copper	239.5	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Iron	23300	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Lead	71.8	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Magnesium	2160	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Manganese	287.5	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Mercury	0.042	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Nickel	9.225	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Potassium	637	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Selenium	0.22	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Silver	1.595	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Sodium	153.5	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Vanadium	35.4	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-3_2018-10-01	2018-dep-exp-3	2018-10-01	Unk	Sediment	Zinc	1009.5	TRUE	mg/kg				454902	5434345	LCR below Trail	-1.3957	0.7656	0.6081	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Aluminum	5860	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Antimony	25.6	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Arsenic	6.76	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Barium	274	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Beryllium	0.28	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Cadmium	1.41	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Calcium	6910	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Chromium	30.2	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Cobalt	12.4	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Copper	322	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Iron	27900	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Lead	70.4	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Magnesium	3230	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Manganese	473	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Mercury	0.106	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Nickel	11.3	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Potassium	1010	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Selenium	0.37	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Silver	1.17	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Sodium	236	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Thallium	0.2	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Vanadium	27.2	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-4_2018-10-01	2018-dep-exp-4	2018-10-01	Unk	Sediment	Zinc	1800	TRUE	mg/kg				455105	5431787	LCR below Trail	-2.2579	0.9507	0.9664	2
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Aluminum	5600	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Antimony	25.2	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Arsenic	7.88	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Barium	216	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Beryllium	0.27	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Cadmium	1.53	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Calcium	7700	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Chromium	29.3	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Cobalt	8.74	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Copper	315	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Iron	32700	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Lead	129	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Magnesium	2700	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Manganese	485	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Mercury	0.245	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Nickel	10.9	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Potassium	900	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Selenium	0.63	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Silver	0.5	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Sodium	197	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Thallium	0.22	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Vanadium	27.2	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-5_2018-10-01	2018-dep-exp-5	2018-10-01	Unk	Sediment	Zinc	2160	TRUE	mg/kg				455097	5431125	LCR below Trail	-2.9486	0.4448	1.0214	1
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Aluminum	5050	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Antimony	19.3	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Arsenic	6.64	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Barium	135	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Beryllium	0.25	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Cadmium	0.573	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Calcium	4330	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Chromium	21.9	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Cobalt	6.38	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Copper	165	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Iron	19300	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Lead	56	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Magnesium	2950	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Manganese	301	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Mercury	0.076	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Nickel	10.3	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Potassium	958	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Selenium	0.22	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Silver	0.73	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Sodium	157	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Thallium	0.14	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Vanadium	25.4	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-6_2018-10-01	2018-dep-exp-6	2018-10-01	Unk	Sediment	Zinc	902	TRUE	mg/kg				455899	5429678	LCR below Trail	-1.3307	0.1887	0.8361	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Aluminum	6100	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Antimony	3.15	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Arsenic	3.63	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Barium	143	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Beryllium	0.26	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Cadmium	1.42	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Calcium	11300	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Chromium	28.6	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Cobalt	5.88	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Copper	46.9	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Iron	19000	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Lead	61.9	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Magnesium	8540	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Manganese	242	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Mercury	0.054	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Nickel	15.3	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Potassium	1170	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Selenium	0.22	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Silver	0.14	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Sodium	201	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Thallium	0.15	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Vanadium	37.4	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-exp-7_2018-10-01	2018-dep-exp-7	2018-10-01	Unk	Sediment	Zinc	506	TRUE	mg/kg				454747	5428243	LCR below Trail	-0.6023	-1.1039	-0.0979	2
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Aluminum	3820	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Antimony	0.05	FALSE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Arsenic	1.38	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Barium	37.1	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Beryllium	0.19	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Cadmium	0.208	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Calcium	1970	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Chromium	14.4	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Cobalt	2.93	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Copper	5.4	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Iron	10000	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Lead	6.26	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Magnesium	2590	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Manganese	114	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Mercury	0.02	FALSE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Nickel	9.01	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Potassium	772	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Selenium	0.1	FALSE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Silver	0.05	FALSE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Sodium	89	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Vanadium	22.2	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-1_2018-10-01	2018-dep-ref-1	2018-10-01	Unk	Sediment	Zinc	60.8	TRUE	mg/kg				452800	5462839	LCR above Trail	2.603	-0.8326	1.0745	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Aluminum	4100	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Antimony	0.05	FALSE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Arsenic	1.07	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Barium	45.5	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Beryllium	0.19	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Cadmium	0.248	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Calcium	1750	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Chromium	10.9	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Cobalt	2.91	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Copper	5.89	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Iron	8870	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Lead	7.19	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Magnesium	2840	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Manganese	115	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Mercury	0.02	FALSE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Nickel	9.65	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Potassium	868	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Selenium	0.1	FALSE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Silver	0.05	FALSE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Sodium	75	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Vanadium	17.8	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-2_2018-10-01	2018-dep-ref-2	2018-10-01	Unk	Sediment	Zinc	64.9	TRUE	mg/kg				448802	5450137	LCR above Trail	2.1788	-1.0659	1.094	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Aluminum	3910	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Antimony	0.15	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Arsenic	1.27	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Barium	38.7	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Beryllium	0.19	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Cadmium	0.165	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Calcium	1860	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Chromium	13.6	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Cobalt	2.99	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Copper	5.38	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Iron	10000	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Lead	5.54	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Magnesium	2570	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Manganese	109	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Mercury	0.02	FALSE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Nickel	8.69	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Potassium	785	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Selenium	0.1	FALSE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Silver	0.05	FALSE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Sodium	86	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Thallium	0.05	FALSE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Vanadium	21.4	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2018 AEMP Teck Trail Operations	2018-dep-ref-3_2018-10-01	2018-dep-ref-3	2018-10-01	Unk	Sediment	Zinc	56.2	TRUE	mg/kg				447508	5446077	LCR above Trail	2.7349	-0.7146	1.0669	3
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Aluminum	9700	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Antimony	13	FALSE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Arsenic	18	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Barium	810	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Beryllium	6.4	FALSE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Cadmium	5.8	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Calcium	33000	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Chromium	40	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Cobalt	14	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Copper	450	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Iron	86000	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Lead	800	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Magnesium	12000	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Manganese	1600	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	7471B	Sediment	Mercury	0.45	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Nickel	17	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Potassium	1700	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Selenium	25	FALSE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Silver	6.4	FALSE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Sodium	490	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Thallium	13	FALSE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Vanadium	43	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-1	HS-1 (1.5-2.0)	2019-04-11	6010C	Sediment	Zinc	6300	TRUE	mg/kg			-236.4700012	443585	5419093	OU 1 North	-4.1923	-0.1967	0.7199	1
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Aluminum	5000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Antimony	6.8	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Arsenic	8.3	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Barium	280	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Beryllium	19	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Cadmium	3.3	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Calcium	27000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Chromium	18	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Cobalt	6.2	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Copper	130	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Iron	24000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Lead	190	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Magnesium	15000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Manganese	400	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	7471B	Sediment	Mercury	0.11	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Nickel	11	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Selenium	3.7	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Silver	1.1	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Sodium	160	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Thallium	1.9	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Vanadium	25	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.0-0.5)	2019-04-17	6010C	Sediment	Zinc	2200	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.0073	-2.2295	0.2821	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Aluminum	7100	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Antimony	19	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Arsenic	9.8	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Barium	430	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Beryllium	9.7	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Cadmium	7.8	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Calcium	23000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Chromium	28	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Cobalt	11	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Copper	230	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Iron	37000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Lead	320	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Magnesium	12000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Manganese	560	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	7471B	Sediment	Mercury	0.18	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Nickel	14	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Potassium	1100	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Selenium	39	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Silver	9.7	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Sodium	220	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Thallium	19	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Vanadium	32	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (0.5-1.0)	2019-04-17	6010C	Sediment	Zinc	2800	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-3.5126	-1.6348	0.8864	2
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Aluminum	11000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Antimony	19	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Arsenic	43	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Barium	410	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Beryllium	9.7	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Cadmium	7.7	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Calcium	35000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Chromium	28	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Cobalt	17	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Copper	640	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Iron	84000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Lead	2700	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Magnesium	9900	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Manganese	2200	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	7471B	Sediment	Mercury	0.23	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Nickel	12	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Potassium	2200	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Selenium	39	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Silver	9.7	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Sodium	830	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Thallium	19	FALSE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Vanadium	39	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-2	HS-2 (1.0-1.5)	2019-04-17	6010C	Sediment	Zinc	15000	TRUE	mg/kg			-191.1699982	443615	5419159	OU 1 North	-4.7159	-0.1019	1.1277	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Aluminum	4700	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Antimony	4.3	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Arsenic	7.4	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Barium	270	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Beryllium	1.2	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Cadmium	4	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Calcium	37000	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Chromium	18	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Cobalt	6.5	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Copper	140	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Iron	25000	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Lead	170	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Magnesium	18000	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Manganese	410	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	7471B	Sediment	Mercury	0.07	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Nickel	11	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Potassium	830	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Selenium	4.8	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Silver	1.3	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Sodium	180	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Thallium	2.4	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Vanadium	23	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.0-0.5)	2019-07-12	6010C	Sediment	Zinc	1700	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.206	-1.3277	-1.2435	2
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Aluminum	8200	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Antimony	100	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Arsenic	51	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Beryllium	51	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Cadmium	41	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Calcium	25000	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Chromium	51	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Cobalt	51	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Copper	400	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Iron	51000	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Lead	1300	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Magnesium	11000	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Manganese	790	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	7471B	Sediment	Mercury	0.16	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Nickel	51	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Potassium	1000	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Selenium	200	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Silver	51	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Sodium		FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Thallium	100	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Vanadium	51	FALSE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	HS-3	HS-3 (0.5-1.0)	2019-04-17	6010C	Sediment	Zinc	6300	TRUE	mg/kg			-136.8899994	443631	5419226	OU 1 North	-3.3398	-1.7573	2.3492	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	13000	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	24	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	18	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	780	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	10	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	8.1	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	46000	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	56	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	28	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	1200	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	120000	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	1900	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	7400	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	3800	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.051	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	14	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	3600	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	40	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	10	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	1600	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	20	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	42	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	13000	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-4.0354	2.084	1.9361	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	7600	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	12	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	9.3	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	330	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	5.5	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	4.4	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	16000	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	29	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	14	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	590	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	52000	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	470	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	4200	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	1200	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.051	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	13	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	1300	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	22	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	5.5	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium	460	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	11	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	29	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	4500	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-3.4411	0.8295	2.0993	1
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Aluminum	5600	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Antimony	2.1	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Arsenic	4.9	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Barium	69	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Beryllium	1.1	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Cadmium	0.8	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Calcium	3900	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Chromium	12	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Cobalt	6.1	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Copper	170	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Iron	17000	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Lead	100	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Magnesium	4000	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Nickel	11	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Potassium	470	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Selenium	4.2	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Silver	1.1	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Sodium	110	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Thallium	2.1	FALSE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Vanadium	24	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-1	TP-1 (3.5-4.0)	2019-04-11	6010C	Sediment	Zinc	620	TRUE	mg/kg			-143.6399994	443145	5419042	OU 1 North	-1.4104	-0.8792	1.6767	2
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	8800	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	11	FALSE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	15	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	520	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	5.6	FALSE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	6.3	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	29000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	28	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	13	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	850	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	67000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	1500	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	11000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	2000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.28	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	17	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	1400	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	23	FALSE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	7.9	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	340	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	11	FALSE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	34	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	6700	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.8237	-0.3053	1.0611	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	13000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	22	FALSE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	41	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	260	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	11	FALSE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	8.9	FALSE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	45000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	19	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	23	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	1300	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	88000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	5600	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	7700	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	4000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	14	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	5000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	45	FALSE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	15	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium	1900	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	22	FALSE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	45	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	12000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	-4.2716	0.763	1.7167	1
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Aluminum	6400	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Antimony	2	FALSE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Arsenic	6.2	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Barium	67	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Beryllium	1	FALSE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Cadmium	0.8	FALSE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Calcium	3400	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Chromium	22	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Cobalt	6.3	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Copper	22	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Iron	16000	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Lead	37	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Magnesium	3600	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Manganese	230	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	7471B	Sediment	Mercury	0.047	FALSE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Nickel	14	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Potassium	660	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Selenium	4	FALSE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Silver	1	FALSE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Sodium	120	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Thallium	2	FALSE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Vanadium	30	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-10	TP-10 (1.0-1.5)	2019-04-11	6010C	Sediment	Zinc	220	TRUE	mg/kg			-225	443240	5419008	OU 1 North	0.8304	-1.3494	1.4883	2
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	16000	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	19	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	43	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	440	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	9.7	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	7.8	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	50000	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	34	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	35	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	1800	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	120000	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	4700	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	9300	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	4000	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.048	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	13	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	5700	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	39	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	9.7	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium	2200	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	19	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	65	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	16000	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-3.9744	1.4899	1.7018	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Aluminum	6500	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Antimony	4.3	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Arsenic	6.9	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Barium	120	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Beryllium	1.9	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Cadmium	1.5	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Calcium	8300	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Chromium	18	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Cobalt	9	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Copper	440	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Iron	29000	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Lead	640	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Magnesium	3900	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Manganese	670	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Nickel	13	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Potassium	1100	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Selenium	7.7	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Silver	1.9	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Sodium	340	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Thallium	3.9	FALSE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Vanadium	27	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-11	TP-11 (3.5-4.0)	2019-04-11	6010C	Sediment	Zinc	2300	TRUE	mg/kg			-187.3000031	443278	5419085	OU 1 North	-2.883	-0.0033	2.129	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	15000	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	84	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	42	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	320	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	42	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	34	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	120000	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	42	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	42	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	400	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	200000	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	11000	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	10000	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	18000	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	42	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	5000	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	170	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	42	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	840	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	84	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	42	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	46000	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-4.2693	0.7554	2.4281	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Aluminum	7200	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Antimony	20	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Arsenic	10	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Barium	120	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Beryllium	10	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Cadmium	12	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Calcium	14000	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Chromium	22	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Cobalt	10	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Copper	200	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Iron	39000	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Lead	1400	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Magnesium	4300	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Manganese	1800	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Nickel	21	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Potassium	1500	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Selenium	41	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Silver	10	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Sodium	340	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Thallium	20	FALSE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Vanadium	44	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-12	TP-12 (1.0-1.5)	2019-04-11	6010C	Sediment	Zinc	3700	TRUE	mg/kg			-211.3399963	443307	5419051	OU 1 North	-3.1659	-1.1609	2.9898	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	16000	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	96	FALSE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	48	FALSE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	770	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	48	FALSE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	39	FALSE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	52000	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	53	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	48	FALSE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	1100	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	170000	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	2900	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	7400	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	4500	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.097	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	48	FALSE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	3300	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	190	FALSE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	48	FALSE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	1100	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	96	FALSE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	48	FALSE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-13	TP-13 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	21000	TRUE	mg/kg			-165.8300018	443314	5419096	OU 1 North	-4.3151	0.4699	2.5858	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	22000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	91	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	46	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	640	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	46	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	36	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	77000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	52	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	46	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	1200	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	160000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	3900	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	12000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	5000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	46	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	7900	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	180	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	46	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	3700	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	91	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	76	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	19000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-3.5909	0.5231	2.3397	1
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Aluminum	11000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Antimony	9.9	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Arsenic	19	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Barium	170	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Beryllium	5	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Cadmium	4	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Calcium	21000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Chromium	22	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Cobalt	19	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Copper	470	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Iron	40000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Lead	280	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Magnesium	6200	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Manganese	420	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	7471B	Sediment	Mercury	0.048	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Nickel	17	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Potassium	3800	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Selenium	20	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Silver	5	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Sodium	1900	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Vanadium	61	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.0-1.5)	2019-04-11	6010C	Sediment	Zinc	670	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	-1.1244	-0.4249	1.3214	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Aluminum	5900	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Antimony	2	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Arsenic	5.4	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Barium	85	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Beryllium	1	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Cadmium	0.9	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Calcium	5000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Chromium	25	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Cobalt	8.2	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Copper	110	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Iron	26000	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Lead	40	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Magnesium	3200	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Manganese	310	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Nickel	15	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Potassium	1200	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Selenium	4	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Silver	1	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Sodium	330	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Thallium	2	FALSE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Vanadium	58	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-14	TP-14 (1.5-2.0)	2019-04-11	6010C	Sediment	Zinc	210	TRUE	mg/kg			-182.4799957	443344	5419073	OU 1 North	0.5831	-0.2476	1.8481	2
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	12000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	32	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	15	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	1100	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	9.8	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	7.8	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	56000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	79	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	35	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	1300	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	130000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	320	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	11000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	2300	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	14	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	2500	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	39	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	9.8	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	1200	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	20	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	36	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	10000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3065	2.3811	1.2078	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	14000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	31	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	17	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	1300	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	9.7	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	7.7	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	49000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	94	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	42	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	1600	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	150000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	350	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	5600	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	2800	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	14	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	2800	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	39	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	9.7	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium	1300	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	19	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	38	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	12000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-3.3698	3.0803	1.8226	1
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Aluminum	41000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Antimony	9.9	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Arsenic	31	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Barium	690	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Beryllium	9.9	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Cadmium	3.9	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Calcium	96000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Chromium	43	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Cobalt	50	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Copper	1400	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Iron	110000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Lead	1400	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Magnesium	22000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Manganese	1300	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	7471B	Sediment	Mercury	0.048	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Nickel	11	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Potassium	20000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Selenium	20	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Silver	4.9	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Sodium	11000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Thallium	9.9	FALSE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Vanadium	130	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-16	TP-16 (3.0-3.5)	2019-04-11	6010C	Sediment	Zinc	2000	TRUE	mg/kg			-170.1300049	443380	5419084	OU 1 North	-1.3537	1.1931	0.579	2
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	13000	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	32	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	17	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	1200	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	10	FALSE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	8.4	FALSE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	41000	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	91	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	41	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	1500	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	130000	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	260	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	5800	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	2600	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	17	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	2300	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	42	FALSE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	10	FALSE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	1200	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	21	FALSE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	43	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-18	TP-18 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	10000	TRUE	mg/kg			-147.7599945	443366	5419106	OU 1 North	-3.1456	2.7562	1.8796	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	17000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	19	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	14	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	840	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	9.3	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	7.5	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	51000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	46	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	22	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	840	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	120000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	1600	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	7800	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	3500	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	9.3	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	4700	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	37	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	9.3	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	2200	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	19	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	49	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	12000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-3.8513	2.0726	1.7348	1
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	46000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	11	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	45	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	660	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	5.3	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	4.3	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	110000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	52	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	52	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	1900	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	110000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	56	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	26000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	640	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	12	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	21000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	21	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	5.3	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium	12000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	11	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	170	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	240	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	1.0316	1.2686	-0.7948	3
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Aluminum	8800	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Antimony	8.8	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Arsenic	7.2	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Barium	150	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Beryllium	4.4	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Cadmium	3.5	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Calcium	19000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Chromium	19	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Cobalt	8.7	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Copper	200	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Iron	29000	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Lead	170	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Magnesium	6600	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Manganese	520	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Nickel	15	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Potassium	2700	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Selenium	18	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Silver	4.4	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Sodium	1200	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Thallium	8.8	FALSE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Vanadium	36	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-19	TP-19 (1.5-2.0)	2019-04-11	6010C	Sediment	Zinc	1100	TRUE	mg/kg			-141.3099976	443417	5419117	OU 1 North	-1.5594	-0.6671	1.342	2
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	13000	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	100	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	50	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	270	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	50	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	40	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	110000	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	50	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	50	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	740	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	200000	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	14000	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	11000	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	16000	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	50	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	4800	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	200	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	50	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium		FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	100	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	50	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	38000	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-4.0836	0.9788	2.7542	1
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Aluminum	9800	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Antimony	1.9	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Arsenic	4.2	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Barium	100	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Beryllium	0.9	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Cadmium	0.8	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Calcium	4400	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Chromium	28	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Cobalt	7.7	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Copper	24	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Iron	20000	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Lead	110	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Magnesium	4900	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Manganese	410	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Nickel	18	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Potassium	1300	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Selenium	3.7	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Silver	0.9	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Sodium	150	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Thallium	1.9	FALSE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Vanadium	38	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-21	TP-21 (1.0-1.5)	2019-04-11	6010C	Sediment	Zinc	2100	TRUE	mg/kg			-251.9700012	443284	5419007	OU 1 North	-0.1215	-1.0806	1.9887	2
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	9100	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	15	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	12	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	650	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	7.6	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	3	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	33000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	49	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	22	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	790	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	80000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	490	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	8800	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	1600	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.11	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	12	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	1700	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	15	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	4.5	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	610	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	7.6	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	29	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	8600	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.6133	1.4373	1.3449	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Aluminum	17000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Antimony	19	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Arsenic	12	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-07-08	6010C	Sediment	Arsenic	12	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Barium	780	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Beryllium	9.4	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Cadmium	7.5	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Calcium	49000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Chromium	64	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-07-08	6010C	Sediment	Chromium	50	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Cobalt	26	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Copper	1000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-07-08	6010C	Sediment	Copper	800	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Iron	150000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Lead	500	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-07-08	6010C	Sediment	Lead	370	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Magnesium	7200	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Manganese	2900	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	7471B	Sediment	Mercury	3.3	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Nickel	11	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Potassium	3600	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Selenium	38	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Silver	9.4	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Sodium	1500	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Thallium	19	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Vanadium	45	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-04-17	6010C	Sediment	Zinc	12000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (0.5-1.0)	2019-07-08	6010C	Sediment	Zinc	8900	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-4.2396	0.9116	2.0934	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Aluminum	18000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Antimony	21	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Arsenic	11	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Barium	580	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Beryllium	10	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Cadmium	8.4	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Calcium	47000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Chromium	56	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Cobalt	20	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Copper	820	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Iron	150000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Lead	290	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Magnesium	6800	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Manganese	2900	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Nickel	10	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Potassium	3600	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Selenium	42	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Silver	10	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Sodium	1200	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Thallium	21	FALSE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Vanadium	43	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-22	TP-22 (1.0-1.5)	2019-04-17	6010C	Sediment	Zinc	14000	TRUE	mg/kg			-156.7200012	443439	5419106	OU 1 North	-3.0192	2.1563	1.9666	1
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	4600	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	5.9	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	5.8	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-07-08	6010C	Sediment	Arsenic	6.5	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	330	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	1.1	FALSE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	2.1	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	24000	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	20	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	6.8	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	180	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-07-08	6010C	Sediment	Copper	170	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	26000	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	160	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-07-08	6010C	Sediment	Lead	130	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	12000	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	400	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.1	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	9.1	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	850	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	4.3	FALSE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	1.7	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	180	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	2.2	FALSE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	25	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	2000	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-23	TP-23 (0.0-0.5)	2019-07-08	6010C	Sediment	Zinc	1500	TRUE	mg/kg			-188.0599976	443431	5419072	OU 1 North	-3.1448	-0.7119	-0.6813	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	5900	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	7.2	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	11	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	360	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	13	FALSE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	2.4	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	19000	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	24	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	8.1	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	240	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	31000	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	360	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	9000	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	420	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.31	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	12	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	1100	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	5.2	FALSE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	1.7	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	220	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	2.6	FALSE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	27	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-25	TP-25 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	2400	TRUE	mg/kg			-219.1499939	443497	5419061	OU 1 North	-3.4809	-1.6844	0.9207	2
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	6400	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	11	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	7.5	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	450	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	5.3	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	4.6	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	37000	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	25	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	11	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	320	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	45000	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	570	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	14000	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	990	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.092	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	11	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	1100	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	21	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	5.3	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	350	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	11	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	27	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	3900	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-3.9547	-0.2599	0.3872	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	15000	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	110	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	56	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	720	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	56	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	45	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	60000	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	56	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	56	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	1000	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	150000	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	5700	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	7800	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	6500	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	56	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	3600	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	220	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	56	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium	1100	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	110	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	56	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	23000	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	-4.2786	0.5025	2.6769	1
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Aluminum	4800	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Antimony	2.3	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Arsenic	4.3	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Barium	48	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Beryllium	1.2	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Cadmium	2.1	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Calcium	2400	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Chromium	15	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Cobalt	5.2	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Copper	68	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Iron	17000	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Lead	15	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Magnesium	2900	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Manganese	250	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Nickel	11	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Potassium	490	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Selenium	4.7	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Silver	1.2	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Sodium	77	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Thallium	2.3	FALSE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Vanadium	34	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-3	TP-3 (1.0-1.5)	2019-04-11	6010C	Sediment	Zinc	360	TRUE	mg/kg			-206.6100006	443174	5418986	OU 1 North	0.0064	-1.4916	2.249	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	14000	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	30	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	24	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	1300	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	9.7	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	7.7	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	50000	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	88	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	42	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	1900	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	150000	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	2600	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	6200	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	3100	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	18	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	2700	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	39	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	9.7	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	1300	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	19	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	38	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	13000	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-4.3244	2.587	1.882	1
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	3800	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	1.9	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	2.4	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	35	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	1	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	0.8	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	1800	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	9.4	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	4.7	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	340	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	8800	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	6	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	2300	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	160	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	10	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	480	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	3.8	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	1	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium	66	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	1.9	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	16	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	49	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	0.3339	-1.1882	2.1937	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Aluminum	4900	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Arsenic	2.7	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Barium	110	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Beryllium	1	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Cadmium	0.8	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Calcium	4200	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Chromium	13	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Cobalt	6.1	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Copper	240	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Iron	15000	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Lead	12	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Magnesium	2600	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Manganese	290	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Nickel	9.8	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Potassium	590	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Selenium	4.1	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Silver	1	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Sodium	160	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Thallium	2	FALSE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Vanadium	18	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-4	TP-4 (3.5-4.0)	2019-04-11	6010C	Sediment	Zinc	570	TRUE	mg/kg			-150.7299957	443190	5419064	OU 1 North	-1.0325	0.2027	1.6106	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	15000	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	110	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	55	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	890	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	55	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	44	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	64000	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	57	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	55	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	1300	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	170000	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	4900	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	8600	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	6100	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.11	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	55	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	4000	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	220	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	55	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	1500	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	110	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	55	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-5	TP-5 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	25000	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-4.621	0.5048	2.5578	1
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	6400	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	1.8	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	8.9	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	76	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	4.6	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	1	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	3900	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	31	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	9.7	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	990	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	28000	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	130	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	4300	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	310	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.051	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	25	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	610	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	3.7	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	0.9	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium	120	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	1.8	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	57	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	860	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-1.0279	-1.0715	2.9057	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Aluminum	5300	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Antimony	2.3	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Arsenic	5.9	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Barium	63	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Beryllium	1.1	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Cadmium	0.9	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Calcium	3600	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Chromium	16	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Cobalt	5.8	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Copper	100	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Iron	18000	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Magnesium	3000	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Manganese	230	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Nickel	13	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Potassium	650	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Selenium	4.5	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Silver	1.1	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Sodium	120	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Thallium	2.3	FALSE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Vanadium	34	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-5	TP-5 (1.0-1.5)	2019-04-11	6010C	Sediment	Zinc	310	TRUE	mg/kg			-186.9499969	443204	5419030	OU 1 North	-0.335	-1.1697	1.7583	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	10000	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	9.3	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	14	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	360	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	4.6	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	3.7	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	22000	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	30	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	15	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	550	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	57000	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	1100	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	6500	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	1300	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.097	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	14	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	2400	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	19	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	4.6	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	1100	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	9.3	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	53	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	4400	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	-3.3171	0.3991	1.6547	1
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	5900	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	2.2	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	12	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	65	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	5.5	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	0.9	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	2600	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	36	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	9.6	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	610	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	32000	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	38	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	2800	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	210	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.053	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	17	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	570	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	4.4	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	1.1	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium	64	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	2.2	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	76	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	230	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	0.4478	-1.1336	3.0263	2
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Aluminum	5400	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Antimony	4.3	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Arsenic	11	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Barium	54	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Beryllium	5.3	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Cadmium	1.7	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Calcium	2900	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Chromium	43	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Cobalt	9	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Copper	53	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Iron	50000	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Lead	10	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Magnesium	2900	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Manganese	290	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Nickel	17	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Potassium	810	TRUE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Selenium	3.8	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-6	TP-6 (2.0-2.5)	2019-04-11	6010C	Sediment	Silver	0.9	FALSE	mg/kg			-222.8000031	443203	5418986	OU 1 North	2.7765	-1.1073	2.7385	3
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	14000	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	39	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	28	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	1300	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	10	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	8	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	50000	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	87	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	42	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	1800	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	150000	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	980	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	5900	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	3100	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	17	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	2900	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	40	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	10	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	1500	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	20	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	38	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	14000	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-3.8796	2.8092	1.6834	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Aluminum	6100	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Antimony	6.4	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Arsenic	5.5	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Barium	180	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Beryllium	4.7	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Cadmium	7.3	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Calcium	7600	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Chromium	23	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Cobalt	8.9	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Copper	380	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Iron	26000	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Lead	70	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Magnesium	3200	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Manganese	600	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Nickel	13	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Potassium	810	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Selenium	3.8	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Silver	0.9	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Sodium	230	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Thallium	1.9	FALSE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Vanadium	31	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-7	TP-7 (0.5-1.0)	2019-04-11	6010C	Sediment	Zinc	1400	TRUE	mg/kg			-176.8399963	443234	5419063	OU 1 North	-2.4027	-0.4535	2.465	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Aluminum	15000	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Antimony	98	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Arsenic	49	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Barium	400	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Beryllium	49	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Cadmium	39	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Calcium	110000	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Chromium	49	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Cobalt	49	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Copper	390	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Iron	210000	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Lead	8800	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Magnesium	9800	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Manganese	19000	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	7471B	Sediment	Mercury	0.05	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Nickel	49	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Potassium	4200	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Selenium	200	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Silver	49	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Sodium	1100	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Thallium	98	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Vanadium	49	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (0.0-0.5)	2019-04-11	6010C	Sediment	Zinc	37000	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-4.0391	0.9514	2.4933	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Aluminum	14000	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Antimony	110	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Arsenic	54	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Barium	330	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Beryllium	54	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Cadmium	43	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Calcium	100000	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Chromium	54	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Cobalt	54	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Copper	370	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Iron	190000	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Lead	7300	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Magnesium	9100	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Manganese	18000	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	7471B	Sediment	Mercury	0.048	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Nickel	54	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Potassium	4100	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Selenium	210	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Silver	54	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Sodium	1100	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Thallium	110	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Vanadium	54	FALSE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	TP-9	TP-9 (2.0-2.5)	2019-04-11	6010C	Sediment	Zinc	33000	TRUE	mg/kg			-238.2599945	443262	5419007	OU 1 North	-3.7036	0.7865	2.7174	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Aluminum	16000	TRUE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Antimony	110	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Arsenic	55	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Barium	640	TRUE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Beryllium	55	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Cadmium	44	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Calcium	120000	TRUE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Chromium	55	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Cobalt	55	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Copper	860	TRUE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Iron	190000	TRUE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Lead	8200	TRUE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Magnesium	11000	TRUE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Manganese	15000	TRUE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	7471B	Sediment	Mercury	0.049	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Nickel	55	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Potassium	4100	TRUE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Selenium	220	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Silver	55	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Sodium		FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Thallium	110	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Vanadium	55	FALSE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-1	XRF-1	2019-04-17	6010C	Sediment	Zinc	38000	TRUE	mg/kg				443314	5419062	OU 1 North	-4.2819	1.255	2.2441	1
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Aluminum	5000	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Antimony	3.5	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Arsenic	6.8	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Barium	290	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Beryllium	1.2	FALSE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Cadmium	4.2	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Calcium	37000	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Chromium	18	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Cobalt	6.3	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Copper	140	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Iron	24000	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Lead	190	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Magnesium	18000	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Manganese	410	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	7471B	Sediment	Mercury	0.098	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Nickel	11	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Potassium	940	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Selenium	4.8	FALSE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Silver	1.2	FALSE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Sodium	180	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Thallium	2.4	FALSE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Vanadium	23	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-100	XRF-100	2019-04-11	6010C	Sediment	Zinc	1700	TRUE	mg/kg				443630	5419193	OU 1 North	-3.3703	-1.5322	-1.1753	2
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Aluminum	19000	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Antimony	22	FALSE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Arsenic	24	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Barium	1100	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Beryllium	11	FALSE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Cadmium	8.6	FALSE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Calcium	59000	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Chromium	82	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Cobalt	35	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Copper	1500	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Iron	190000	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Lead	1600	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Magnesium	8200	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Manganese	4100	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	7471B	Sediment	Mercury	0.1	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Nickel	15	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Potassium	3400	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Selenium	43	FALSE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Silver	11	FALSE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Sodium	1300	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Thallium	22	FALSE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Vanadium	50	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-11	XRF-11	2019-04-17	6010C	Sediment	Zinc	17000	TRUE	mg/kg				443292	5419085	OU 1 North	-4.0248	2.2384	1.7868	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Aluminum	15000	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Antimony	93	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Arsenic	67	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Barium	440	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Beryllium	46	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Cadmium	37	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Calcium	84000	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Chromium	46	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Cobalt	46	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Copper	1600	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Iron	220000	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Lead	15000	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Magnesium	10000	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Manganese	11000	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	7471B	Sediment	Mercury	0.05	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Nickel	46	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Potassium	4300	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Selenium	190	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Silver	46	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Sodium	930	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Thallium	93	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Vanadium	46	FALSE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-24	XRF-24	2019-04-17	6010C	Sediment	Zinc	44000	TRUE	mg/kg				443159	5418986	OU 1 North	-4.9535	0.7447	2.5095	1
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Aluminum	6100	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Antimony	23	FALSE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Arsenic	11	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Barium	130	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Beryllium	11	FALSE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Cadmium	9	FALSE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Calcium	160000	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Chromium	25	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Cobalt	11	FALSE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Copper	43	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Iron	12000	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Lead	190	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Magnesium	9300	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Manganese	240	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	7471B	Sediment	Mercury	0.074	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Nickel	28	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Potassium	1200	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Selenium	45	FALSE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Silver	11	FALSE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Sodium	230	FALSE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Thallium	23	FALSE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Vanadium	25	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-26	XRF-26	2019-04-17	6010C	Sediment	Zinc	180	TRUE	mg/kg				443174	5418953	OU 1 North	-1.3582	-3.4223	-0.9553	2
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Aluminum	9700	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Antimony	23	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Arsenic	11	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Barium	880	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Beryllium	11	FALSE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Cadmium	8.9	FALSE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Calcium	33000	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Chromium	61	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Cobalt	27	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Copper	1100	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Iron	100000	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Lead	290	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Magnesium	4900	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Manganese	2000	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	7471B	Sediment	Mercury	0.048	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Nickel	11	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Potassium	1800	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Selenium	44	FALSE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Silver	11	FALSE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Sodium	790	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Thallium	22	FALSE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Vanadium	31	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-41	XRF-41	2019-07-08	6010C	Sediment	Zinc	9000	TRUE	mg/kg				443234	5419108	OU 1 North	-3.672	2.2783	2.074	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Aluminum	21000	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Antimony	89	FALSE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Arsenic	58	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Barium	560	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Beryllium	44	FALSE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Cadmium	36	FALSE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Calcium	80000	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Chromium	140	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Cobalt	52	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Copper	3000	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Iron	250000	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Lead	2100	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Magnesium	6800	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Manganese	5200	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	7471B	Sediment	Mercury	0.047	FALSE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Nickel	44	FALSE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Potassium	3600	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Selenium	180	FALSE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Silver	44	FALSE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Sodium	1700	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Thallium	89	FALSE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Vanadium	44	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-49	XRF-49	2019-04-17	6010C	Sediment	Zinc	44000	TRUE	mg/kg				443366	5419140	OU 1 North	-3.9612	1.742	2.9063	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Aluminum	21000	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Antimony	96	FALSE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Arsenic	48	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Barium	980	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Beryllium	48	FALSE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Cadmium	38	FALSE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Calcium	82000	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Chromium	140	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Cobalt	56	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Copper	2900	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Iron	240000	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Lead	1000	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Magnesium	7600	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Manganese	4600	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	7471B	Sediment	Mercury	0.049	FALSE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Nickel	48	FALSE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Potassium	3700	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Selenium	190	FALSE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Silver	48	FALSE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Sodium	1800	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Thallium	96	FALSE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Vanadium	48	FALSE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-50	XRF-50	2019-04-17	6010C	Sediment	Zinc	21000	TRUE	mg/kg				443374	5419140	OU 1 North	-3.5804	1.8483	2.5196	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Aluminum	19000	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Antimony	27	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Arsenic	31	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Barium		TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Beryllium	11	FALSE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Cadmium	8.7	FALSE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Calcium	67000	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Chromium	130	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Cobalt	56	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Copper	2400	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Iron	210000	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Lead	510	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Magnesium	6400	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Manganese	4100	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	7471B	Sediment	Mercury	0.049	FALSE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Nickel	19	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Potassium	3300	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Selenium	44	FALSE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Silver	11	FALSE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Sodium	1700	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Thallium	22	FALSE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Vanadium	45	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-63	XRF-63	2019-04-17	6010C	Sediment	Zinc	18000	TRUE	mg/kg				443432	5419139	OU 1 North	-2.9806	3.3927	1.8744	1
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Aluminum	4700	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Antimony	8.2	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Arsenic	6.7	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Barium	310	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Beryllium	1.2	FALSE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Cadmium	3.4	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Calcium	31000	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Chromium	20	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Cobalt	8.4	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Copper	230	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Iron	28000	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Lead	200	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Magnesium	13000	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Manganese	520	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	7471B	Sediment	Mercury	0.22	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Nickel	8.8	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Potassium	860	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Selenium	4.8	FALSE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Silver	1.2	FALSE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Sodium	230	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Thallium	2.4	FALSE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Vanadium	20	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-66	XRF-66	2019-04-17	6010C	Sediment	Zinc	2100	TRUE	mg/kg				443475	5419083	OU 1 North	-3.8087	-0.7938	-0.573	2
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Aluminum	7700	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Antimony	19	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Arsenic	10	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Barium	570	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Beryllium	5.5	FALSE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Cadmium	4.4	FALSE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Calcium	23000	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Chromium	46	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Cobalt	21	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Copper	840	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Iron	70000	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Lead	410	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Magnesium	4900	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Manganese	1300	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	7471B	Sediment	Mercury	0.049	FALSE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Nickel	13	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Potassium	1300	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Selenium	22	FALSE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Silver	5.5	FALSE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Sodium	520	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Thallium	11	FALSE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Vanadium	32	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-7	XRF-7	2019-04-11	6010C	Sediment	Zinc	7900	TRUE	mg/kg				443358	5419095	OU 1 North	-3.6298	1.6352	1.8549	1
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Aluminum	5000	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Antimony	2.4	FALSE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Arsenic	7.7	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Barium	280	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Beryllium	1.2	FALSE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Cadmium	5.3	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Calcium	38000	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Chromium	16	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Cobalt	5.7	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Copper	77	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Iron	22000	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Lead	200	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Magnesium	20000	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2

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Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Manganese	340	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	7471B	Sediment	Mercury	0.27	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Nickel	13	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Potassium	940	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Selenium	4.8	FALSE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Silver	1.2	FALSE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Sodium	150	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Thallium	2.4	FALSE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Vanadium	24	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-96	XRF-96	2019-07-12	6010C	Sediment	Zinc	1400	TRUE	mg/kg				443549	5419071	OU 1 North	-3.466	-2.5838	-1.4196	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Aluminum	4700	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Antimony	3.6	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Arsenic	5.7	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Barium	290	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Beryllium	1.2	FALSE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Cadmium	4.6	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Calcium	37000	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Chromium	15	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Cobalt	5.3	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Copper	95	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Iron	20000	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Lead	190	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Magnesium	19000	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Manganese	350	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	7471B	Sediment	Mercury	0.095	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Nickel	11	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Potassium	860	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Selenium	4.9	FALSE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Silver	1.2	FALSE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Sodium	160	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Thallium	2.5	FALSE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Vanadium	23	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Northport Waterfront RI	XRF-99	XRF-99	2019-07-12	6010C	Sediment	Zinc	1400	TRUE	mg/kg				443608	5419148	OU 1 North	-3.4151	-1.9988	-1.3564	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Aluminum	6620	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Antimony	8.76	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Arsenic	9.4	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Barium	453	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Beryllium	0.353	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cadmium	4.25	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Calcium	32900	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Chromium	25.2	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cobalt	9.93	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Copper	244	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Iron	30600	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Lead	197	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Magnesium	16800	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Manganese	487	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA7471B	Sediment	Mercury	0.152	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Nickel	15	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Potassium	1240	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Selenium	0.6	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Silver	1.8	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Sodium	185	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Thallium	0.298	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Vanadium	26.4	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B5-NRT-2019	1-B5-NRT-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Zinc	2240	TRUE	mg/kg	83.3	16.63	183.36	446377	5421110	OU 1 North	-3.4805	-0.8645	-1.429	2
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Aluminum	12700	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Antimony	25.2	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Arsenic	11.7	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Barium	1020	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Beryllium	0.572	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Cadmium	1.42	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Calcium	45500	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Chromium	71.8	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Cobalt	38.7	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Copper	1200	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Iron	114000	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Lead	193	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Magnesium	9060	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Manganese	2270	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA7471B	Sediment	Mercury	0.037	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Nickel	11.4	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Potassium	2430	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Selenium	1.3	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Silver	2.16	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Sodium	1270	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Thallium	0.059	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Vanadium	31.8	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1
2019 Phase 3 Sediment Study	1-B6-NRT-2019	1-B6-NRT-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Zinc	9660	TRUE	mg/kg	97.7	0.692	87.31	446334	5421022	OU 1 North	-2.6453	4.126	0.0392	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Aluminum	15700	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Antimony	45.7	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Arsenic	20.6	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Barium	1410	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Beryllium	0.806	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cadmium	0.492	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Calcium	54500	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Chromium	97.5	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cobalt	44.8	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Copper	1750	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Iron	163000	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Lead	284	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Magnesium	6740	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Manganese	2980	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA7471B	Sediment	Mercury	0.004	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Nickel	15.6	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Potassium	3730	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Selenium	1.6	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Silver	3.92	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Sodium	2060	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Thallium	0.043	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Vanadium	40.4	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R7-2019	3-R7-2019-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Zinc	12300	TRUE	mg/kg	93.1	0.1853	63.22	430299	5407150	OU 1 South	-1.6076	5.8651	-0.0893	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Aluminum	27200	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Antimony	16.4	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Arsenic	80.5	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Barium	608	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Beryllium	0.804	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Cadmium	5.01	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Calcium	64800	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Chromium	43.5	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Cobalt	58.7	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Copper	1540	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Iron	171000	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Lead	5520	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Magnesium	11300	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Manganese	3410	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA7471B	Sediment	Mercury	0.009	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Nickel	17.2	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Potassium	8020	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Selenium	2.8	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Silver	6.13	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Sodium	4780	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Thallium	0.096	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Vanadium	77.4	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	3-R8-2019	3-R8-2019-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Zinc	29300	TRUE	mg/kg	88.2	0.253	11.93	429440	5407287	OU 1 South	-3.1902	3.1787	0.1201	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	23100	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	34.2	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	20.4	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	1690	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.872	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	0.802	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	70200	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	123	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	46.6	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	2130	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	229000	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	383	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	6420	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	4140	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.009	FALSE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	15.5	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	4100	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	2	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	3.74	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	2120	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.045	FALSE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	42	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B1-2019	4-B1-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	18800	TRUE	mg/kg	98.4	1.358	121.55	424499	5393516	OU 1 South	-2.1768	5.8517	0.1925	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	21500	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	26.8	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	18.6	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	1480	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.809	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	0.785	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	65100	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	111	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	42.9	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	1830	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	222000	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	503	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	6190	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	4030	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.01	FALSE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	12.6	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	4070	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	2.1	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	2.71	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	1940	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.046	FALSE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	41.6	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	4-B6-2019	4-B6-2019-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	18900	TRUE	mg/kg	99.4	0.3026	38.62	423101	5391740	OU 1 South	-2.3535	5.7161	0.301	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Aluminum	6880	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Antimony	13	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Arsenic	7.1	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Barium	457	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Beryllium	0.316	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Cadmium	2.28	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Calcium	30300	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Chromium	31.9	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Cobalt	13.9	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Copper	453	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Iron	48500	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Lead	159	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Magnesium	10600	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Manganese	970	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA7471B	Sediment	Mercury	0.051	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Nickel	10.1	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Potassium	1290	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Selenium	0.6	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Silver	1.41	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Sodium	423	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Thallium	0.09	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Vanadium	21.3	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB002	CB002-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Zinc	4220	TRUE	mg/kg	97.5	2.485	152.78	429474	5407449	OU 1 South	-3.2116	1.7318	-0.607	1
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Aluminum	4780	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Antimony	1.84	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Arsenic	3.23	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Barium	47.8	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Beryllium	0.274	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Cadmium	0.339	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Calcium	4930	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Chromium	15.2	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Cobalt	5.31	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Copper	49.5	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Iron	10800	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Lead	143	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Magnesium	3420	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Manganese	240	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Nickel	21.4	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Potassium	677	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Silver	0.278	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Sodium	293	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Thallium	0.06	FALSE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Vanadium	15.2	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB005	CB005-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Zinc	638	TRUE	mg/kg	14.2	0.145	41.28	429467	5407334	OU 1 South	0.0425	0.4089	0.9969	2
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Aluminum	9430	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Antimony	24.8	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Arsenic	12	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Barium	727	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Beryllium	0.458	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cadmium	1.23	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Calcium	32700	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Chromium	50.3	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cobalt	25.5	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Copper	811	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Iron	82800	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Lead	202	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Magnesium	5850	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Manganese	1590	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA7471B	Sediment	Mercury	0.027	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Nickel	9.8	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Potassium	1780	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Selenium	0.9	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Silver	2.26	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Sodium	849	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Thallium	0.086	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Vanadium	22.9	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB006	CB006-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Zinc	7030	TRUE	mg/kg	99.1	0.8877	111.79	429540	5407414	OU 1 South	-2.831	3.7716	-0.0272	1
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Aluminum	7130	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Antimony	4.21	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Arsenic	4.95	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Barium	248	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Beryllium	0.288	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cadmium	1.68	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Calcium	18100	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Chromium	17.3	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cobalt	7.76	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Copper	112	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Iron	26000	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Lead	92.9	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Magnesium	10100	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Manganese	458	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA7471B	Sediment	Mercury	0.115	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Nickel	11.4	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Potassium	1460	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Selenium	0.3	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Silver	0.868	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Sodium	260	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Thallium	0.174	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Vanadium	26.2	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB007	CB007-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Zinc	1110	TRUE	mg/kg	70.8	8.764	164.97	429565	5407464	OU 1 South	-2.0867	-0.3985	-0.6645	2
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Aluminum	11900	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Antimony	17.7	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Arsenic	21	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Barium	657	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Beryllium	0.483	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Cadmium	3.1	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Calcium	31800	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Chromium	43.6	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Cobalt	21.4	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Copper	1090	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Iron	100000	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Lead	772	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Magnesium	8460	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Manganese	2300	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA7471B	Sediment	Mercury	0.096	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Nickel	11.9	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Potassium	2040	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Selenium	1.5	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Silver	2.53	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Sodium	798	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Thallium	0.143	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Vanadium	31	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB009	CB009-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Zinc	14100	TRUE	mg/kg	88.5	4.363	145.84	429606	5407433	OU 1 South	-4.1471	2.408	0.1056	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Aluminum	6890	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Antimony	7.28	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Arsenic	8.4	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Barium	281	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Beryllium	0.286	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Cadmium	4.36	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Calcium	33500	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Chromium	20.7	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Cobalt	9.62	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Copper	354	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Iron	46800	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Lead	390	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Magnesium	11700	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Manganese	930	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA7471B	Sediment	Mercury	0.305	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Nickel	8.14	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Potassium	1230	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Selenium	0.8	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Silver	0.781	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Sodium	414	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Thallium	0.113	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Vanadium	23.7	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB010	CB010-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Zinc	5570	TRUE	mg/kg	92.6	5.534	135.85	429620	5407418	OU 1 South	-4.4409	0.1442	-0.5988	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Aluminum	8270	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Antimony	23.4	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Arsenic	9.4	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Barium	660	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Beryllium	0.387	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cadmium	1.25	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Calcium	29400	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Chromium	45.6	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cobalt	21.3	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Copper	713	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Iron	77600	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Lead	175	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Magnesium	5650	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Manganese	1380	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA7471B	Sediment	Mercury	0.025	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Nickel	9.08	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Potassium	1510	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Selenium	0.8	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Silver	1.97	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Sodium	736	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Thallium	0.066	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Vanadium	21.6	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB012	CB012-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Zinc	6120	TRUE	mg/kg	98.6	1.443	100.08	429601	5407387	OU 1 South	-2.8859	3.6654	-0.0331	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Aluminum	13900	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Aluminum	13900	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Antimony	27.2	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Antimony	27.2	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Arsenic	14.7	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Arsenic	14.7	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Barium	1180	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Barium	1180	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Beryllium	0.674	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Beryllium	0.674	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cadmium	1.01	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cadmium	1.01	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Calcium	41900	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Calcium	41900	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Chromium	85.5	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Chromium	85.5	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cobalt	40.9	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cobalt	40.9	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Copper	1410	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Iron	132000	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Iron	132000	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Lead	288	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Lead	288	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Magnesium	5450	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Magnesium	5450	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Manganese	2660	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Manganese	2660	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA7471B	Sediment	Mercury	0.02	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA7471B	Sediment	Mercury	0.02	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Nickel	12.7	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Nickel	12.7	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Potassium	2570	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Potassium	2570	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Selenium	1.45	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Selenium	1.45	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Silver	2.97	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Silver	2.97	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Sodium	1310	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Sodium	1310	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Thallium	0.068	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Thallium	0.068	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Vanadium	31.7	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Vanadium	31.7	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Zinc	11700	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB014	CB014-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Zinc	11700	TRUE	mg/kg	99.8	0.2034	62.11	429613	5407339	OU 1 South	-2.5841	4.8721	0.4192	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Aluminum	10600	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Antimony	9.54	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Arsenic	9.8	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Barium	565	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Beryllium	0.423	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Cadmium	3.32	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Calcium	33800	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Chromium	38.9	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Cobalt	11.7	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Copper	549	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Iron	83000	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Lead	430	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Magnesium	7900	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Manganese	1760	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA7471B	Sediment	Mercury	0.095	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Nickel	9	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Potassium	1590	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Selenium	1.2	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Silver	1.02	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Sodium	521	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Thallium	0.128	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Vanadium	32.3	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB016	CB016-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Zinc	9210	TRUE	mg/kg	94.8	1.543	140.84	429674	5407403	OU 1 South	-4.0042	1.8867	-0.0196	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Aluminum	11400	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Antimony	46.4	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Arsenic	16.5	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Barium	1120	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Beryllium	0.582	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cadmium	1.77	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Calcium	47000	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Chromium	73	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cobalt	36	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Copper	1270	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Iron	121000	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Lead	236	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Magnesium	6840	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Manganese	2210	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA7471B	Sediment	Mercury	0.049	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Nickel	12	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Potassium	2240	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Selenium	1.15	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Silver	3.49	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Sodium	1220	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Thallium	0.104	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Vanadium	27.7	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB018	CB018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Zinc	10000	TRUE	mg/kg	98.3	1.309	133.039993	429707	5407381	OU 1 South	-3.1173	4.0816	-0.0517	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Aluminum	10700	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Antimony	30.5	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Arsenic	13.2	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Barium	907	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Beryllium	0.518	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cadmium	3.93	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Calcium	39000	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Chromium	66.2	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cobalt	32.9	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Copper	1170	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Iron	98200	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Lead	247	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Magnesium	7720	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Manganese	2110	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA7471B	Sediment	Mercury	0.05	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Nickel	11.3	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Potassium	2030	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Selenium	1.1	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Silver	3.15	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Sodium	1080	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Thallium	0.109	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Vanadium	26.5	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB020	CB020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Zinc	8750	TRUE	mg/kg	98.5	1.449	131.52	429734	5407364	OU 1 South	-3.4201	3.4167	0.2061	1
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Aluminum	6640	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Antimony	5.68	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Arsenic	7.4	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Barium	414	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Beryllium	0.359	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cadmium	3.57	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Calcium	25600	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Chromium	21.8	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cobalt	8.11	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Copper	175	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Iron	26700	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Lead	174	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Magnesium	14300	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Manganese	472	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA7471B	Sediment	Mercury	0.256	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Nickel	13.6	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Potassium	1220	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Selenium	0.6	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Silver	0.923	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Sodium	185	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Thallium	0.322	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Vanadium	24.5	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB021	CB021-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Zinc	1730	TRUE	mg/kg	83.4	15.25	153.03	429791	5407362	OU 1 South	-3.4289	-1.1277	-1.1588	2
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Aluminum	6340	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Antimony	31.5	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Arsenic	8.3	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Barium	425	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Beryllium	0.286	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cadmium	3.35	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Calcium	32700	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Chromium	26.1	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cobalt	10.2	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Copper	342	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Iron	36000	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Lead	183	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Magnesium	13200	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Manganese	749	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA7471B	Sediment	Mercury	0.084	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Nickel	10	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Potassium	1120	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Selenium	0.5	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Silver	1.22	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Sodium	297	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Thallium	0.14	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Vanadium	20.3	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB024	CB024-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Zinc	3360	TRUE	mg/kg	96.2	3.714	128.01	429795	5407333	OU 1 South	-3.6648	0.5561	-1.1776	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Aluminum	6140	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Antimony	9.18	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Arsenic	5.9	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Barium	412	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Beryllium	0.276	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cadmium	2.86	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Calcium	29200	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Chromium	24.3	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cobalt	10.1	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Copper	321	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Iron	36600	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Lead	154	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Magnesium	11500	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Manganese	751	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA7471B	Sediment	Mercury	0.085	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Nickel	9.35	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Potassium	1090	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Selenium	0.5	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Silver	0.972	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Sodium	308	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Thallium	0.122	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Vanadium	20.3	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB027	CB027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Zinc	3260	TRUE	mg/kg	97.4	2.606	115.16	429794	5407320	OU 1 South	-3.5736	0.7908	-0.8834	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Aluminum	5130	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Antimony	8.96	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Arsenic	6	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Barium	401	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Beryllium	0.247	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cadmium	3.06	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Calcium	30700	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Chromium	21	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cobalt	8.78	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Copper	266	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Iron	29500	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Lead	158	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Magnesium	13400	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Manganese	668	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA7471B	Sediment	Mercury	0.085	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Nickel	9.46	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Potassium	996	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Selenium	0.4	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Silver	0.729	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Sodium	243	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Thallium	0.116	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Vanadium	20.2	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB029	CB029-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Zinc	2840	TRUE	mg/kg	95.5	4.461	115.12	429819	5407312	OU 1 South	-3.7204	0.3026	-1.2902	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Aluminum	11600	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Aluminum	11600	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Antimony	27.3	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Antimony	27.3	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Arsenic	10.4	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Arsenic	10.4	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Barium	754	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Barium	754	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Beryllium	0.509	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Beryllium	0.509	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Cadmium	0.638	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Cadmium	0.638	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Calcium	34100	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Calcium	34100	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Chromium	53.9	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Chromium	53.9	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Cobalt	24.3	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Cobalt	24.3	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Copper	897	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Copper	897	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Iron	101000	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Iron	101000	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Lead	207	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Lead	207	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Magnesium	5350	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Magnesium	5350	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Manganese	1730	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Manganese	1730	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA7471B	Sediment	Mercury	0.004	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA7471B	Sediment	Mercury	0.004	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Nickel	10.5	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Nickel	10.5	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Potassium	2480	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Potassium	2480	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Selenium	0.8	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Selenium	0.8	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Silver	1.77	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Silver	1.77	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Sodium	1310	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Sodium	1310	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Thallium	0.118	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Thallium	0.118	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Vanadium	30.3	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Vanadium	30.3	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Zinc	7250	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB035	CB035-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Zinc	7250	TRUE	mg/kg	79.4	0.4611	53.64	430352	5407152	OU 1 South	-1.8258	4.9038	0.0775	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Aluminum	15700	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Antimony	37.2	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Arsenic	17.1	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Barium	1230	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Beryllium	0.705	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Cadmium	0.508	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6010C-METDIG	Sediment	Calcium	49600	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Chromium	87.3	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Cobalt	40.3	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Copper	1450	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6010C-METDIG	Sediment	Iron	158000	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Lead	218	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6010C-METDIG	Sediment	Magnesium	5660	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Manganese	2730	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA7471B	Sediment	Mercury	0.002	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Nickel	14	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6010C-METDIG	Sediment	Potassium	3320	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Selenium	1.3	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Silver	2.75	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6010C-METDIG	Sediment	Sodium	1930	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Thallium	0.058	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Vanadium	37.2	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB036	CB036-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Zinc	12000	TRUE	mg/kg	94.4	0.3055	28.54	430401	5407139	OU 1 South	-1.381	6.1228	-0.0183	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Aluminum	26600	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Antimony	49.5	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Arsenic	30.7	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Barium	1800	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Beryllium	0.912	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Cadmium	0.883	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Calcium	59800	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Chromium	125	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Cobalt	57.8	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Copper	2240	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Iron	190000	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Lead	461	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Magnesium	6580	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Manganese	3870	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA7471B	Sediment	Mercury	0.006	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Nickel	18.3	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Potassium	3910	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Selenium	2.2	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Silver	4.28	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Sodium	2110	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Thallium	0.068	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Vanadium	43.4	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB039	CB039-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Zinc	18500	TRUE	mg/kg	82	0.1323	67.86	430653	5407207	OU 1 South	-2.0263	5.6846	0.1387	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Aluminum	18200	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Antimony	21.2	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Arsenic	16.8	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Barium	924	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Beryllium	0.701	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Cadmium	2.05	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Calcium	41000	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Chromium	61.8	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Cobalt	28.5	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Copper	1170	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Iron	153000	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Lead	648	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Magnesium	7550	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Manganese	3000	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA7471B	Sediment	Mercury	0.012	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Nickel	11.7	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Potassium	3290	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Selenium	2.1	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Silver	2.54	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Sodium	1390	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Thallium	0.107	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Vanadium	42.2	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB040	CB040-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Zinc	14700	TRUE	mg/kg	93.2	1.693	98.71	430616	5407249	OU 1 South	-2.8697	4.0912	0.3998	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Aluminum	5860	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Antimony	7.06	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Arsenic	5.8	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Barium	267	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Beryllium	0.256	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cadmium	1.93	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Calcium	16300	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Chromium	19.5	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cobalt	7.61	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Copper	169	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Iron	27900	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Lead	147	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Magnesium	8290	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Manganese	484	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA7471B	Sediment	Mercury	0.07	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Nickel	9.74	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Potassium	874	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Selenium	0.3	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Silver	0.582	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Sodium	199	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Thallium	0.12	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Vanadium	19.8	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB044	CB044-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Zinc	1890	TRUE	mg/kg	95.7	4.032	207.02	430666	5407348	OU 1 South	-2.9591	0.1423	-0.5687	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Aluminum	20800	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Aluminum	20800	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Antimony	44.8	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Antimony	44.8	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Arsenic	19.5	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Arsenic	19.5	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Barium	1790	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Barium	1790	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Beryllium	0.963	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Beryllium	0.963	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Cadmium	0.752	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Cadmium	0.752	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6010C-METDIG	Sediment	Calcium	75400	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6010C-METDIG	Sediment	Calcium	75400	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Chromium	124	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Chromium	124	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Cobalt	55	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Cobalt	55	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Copper	2160	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Copper	2160	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6010C-METDIG	Sediment	Iron	244000	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6010C-METDIG	Sediment	Iron	244000	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Lead	356	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Lead	356	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6010C-METDIG	Sediment	Magnesium	6810	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6010C-METDIG	Sediment	Magnesium	6810	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Manganese	4710	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Manganese	4710	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA7471B	Sediment	Mercury	0.011	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA7471B	Sediment	Mercury	0.011	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Nickel	16.6	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Nickel	16.6	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6010C-METDIG	Sediment	Potassium	4410	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6010C-METDIG	Sediment	Potassium	4410	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Selenium	2.2	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Selenium	2.2	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Silver	3.67	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Silver	3.67	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6010C-METDIG	Sediment	Sodium	2480	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6010C-METDIG	Sediment	Sodium	2480	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Thallium	0.038	FALSE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Thallium	0.038	FALSE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Vanadium	42.5	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Vanadium	42.5	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Zinc	20700	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB046	CB046-SE-1-100819	2019-10-08	EPA6020A-METDIG	Sediment	Zinc	20700	TRUE	mg/kg	98.4	1.242	172.06	430800	5407319	OU 1 South	-2.1507	6.0458	0.2463	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Aluminum	12300	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Antimony	23.5	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Arsenic	9.3	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Barium	958	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Beryllium	0.523	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Cadmium	0.774	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Calcium	36500	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Chromium	66.4	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Cobalt	31.1	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Copper	1180	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Iron	110000	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Lead	189	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Magnesium	4630	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Manganese	2190	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA7471B	Sediment	Mercury	0.004	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Nickel	9.66	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Potassium	2730	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Selenium	1.2	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Silver	1.93	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Sodium	1670	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Thallium	0.041	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Vanadium	26.9	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB047	CB047-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Zinc	9650	TRUE	mg/kg	76.4	0.3757	118.74	431021	5407419	OU 1 South	-2.0489	5.566	0.3808	1
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Aluminum	6160	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Antimony	3.97	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Arsenic	5.69	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Barium	240	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Beryllium	0.321	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Cadmium	1.92	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6010C-METDIG	Sediment	Calcium	12700	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Chromium	20.4	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Cobalt	6.26	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Copper	98.4	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6010C-METDIG	Sediment	Iron	19200	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Lead	86.3	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6010C-METDIG	Sediment	Magnesium	8630	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Manganese	317	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA7471B	Sediment	Mercury	0.038	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Nickel	13.6	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6010C-METDIG	Sediment	Potassium	1040	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Selenium	0.4	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Silver	0.372	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6010C-METDIG	Sediment	Sodium	149	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Thallium	0.238	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Vanadium	28.1	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	CB056	CB056-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Zinc	858	TRUE	mg/kg	59	14.647	95.22	432089	5407672	OU 1 South	-1.7793	-0.7922	-0.6019	2
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Aluminum	13300	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Antimony	30.4	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Arsenic	12.8	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Barium	1170	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Beryllium	0.629	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cadmium	0.707	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Calcium	44100	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Chromium	80.8	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cobalt	41.2	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Copper	1240	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Iron	145000	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Lead	264	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Magnesium	4880	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Manganese	2530	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA7471B	Sediment	Mercury	0.012	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Nickel	11.5	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Potassium	2610	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Selenium	1.6	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Silver	3.06	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Sodium	1360	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Thallium	0.055	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Vanadium	31.3	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM002	DM002-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Zinc	12200	TRUE	mg/kg	99.7	0.1411	79.35	445979	5421228	OU 1 North	-2.32	5.3798	0.3655	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Aluminum	9860	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Antimony	20.2	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Arsenic	10.1	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Barium	725	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Beryllium	0.455	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cadmium	0.724	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Calcium	26400	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Chromium	54.1	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cobalt	26.3	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Copper	805	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Iron	80800	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Lead	152	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Magnesium	4340	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Manganese	1620	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA7471B	Sediment	Mercury	0.016	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Nickel	10.2	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Potassium	1790	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Selenium	1	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Silver	1.62	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Sodium	783	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Thallium	0.072	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Vanadium	24.1	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM007	DM007-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Zinc	6710	TRUE	mg/kg	99.9	0.1489	70.07	446082	5421188	OU 1 North	-2.2801	4.3342	0.3118	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Aluminum	17100	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Antimony	71.6	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Arsenic	24.4	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Barium	2440	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Beryllium	1.04	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Cadmium	1.45	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Calcium	65700	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Chromium	163	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Cobalt	126	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Copper	2860	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Iron	190000	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Lead	255	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Magnesium	5910	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Manganese	4660	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA7471B	Sediment	Mercury	0.064	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Nickel	17.4	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Potassium	3380	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Selenium	1.9	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Silver	12.2	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Sodium	2930	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Thallium	0.187	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Vanadium	41.2	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM008	DM008-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Zinc	18100	TRUE	mg/kg	99.1	0.837	83.48	446073	5421203	OU 1 North	-2.6818	5.7914	0.6951	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Aluminum	8740	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Antimony	28.9	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Arsenic	11.1	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Barium	617	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Beryllium	0.408	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Cadmium	1.39	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Calcium	27300	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Chromium	46.2	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Cobalt	21.8	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Copper	807	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Iron	66300	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Lead	175	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Magnesium	6450	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Manganese	1440	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA7471B	Sediment	Mercury	0.093	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Nickel	9.77	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Potassium	1600	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Selenium	0.8	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Silver	3.55	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6010C-METDIG	Sediment	Sodium	756	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Thallium	0.086	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Vanadium	22.8	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM010	DM010-SE-1-101119	2019-10-11	EPA6020A-METDIG	Sediment	Zinc	6030	TRUE	mg/kg	99.8	0.16	102.39	446114	5421213	OU 1 North	-3.1675	2.9154	0.0465	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Aluminum	9640	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Antimony	51.8	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Arsenic	17.7	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Barium	913	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Beryllium	0.523	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Cadmium	2.03	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Calcium	35900	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Chromium	57.9	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Cobalt	23.6	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Copper	1370	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Iron	82700	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Lead	248	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Magnesium	6890	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Manganese	1930	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA7471B	Sediment	Mercury	0.143	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Nickel	13.6	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Potassium	1890	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Selenium	1	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Silver	6.95	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Sodium	1040	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Thallium	0.247	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Vanadium	25.8	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM015	DM015-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Zinc	7520	TRUE	mg/kg	99.4	0.562	137.42	446163	5421228	OU 1 North	-3.6903	2.9502	-0.1153	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Aluminum	6520	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Aluminum	6520	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Antimony	10.4	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Antimony	10.4	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Arsenic	5.4	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Arsenic	5.4	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Barium	332	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Barium	332	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Beryllium	0.286	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Beryllium	0.286	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Cadmium	1.87	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Cadmium	1.87	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Calcium	23500	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Calcium	23500	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Chromium	26.7	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Chromium	26.7	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Cobalt	9.93	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Cobalt	9.93	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Copper	373	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Copper	373	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Iron	43500	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Iron	43500	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Lead	114	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Lead	114	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Magnesium	8220	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Magnesium	8220	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Manganese	854	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Manganese	854	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA7471B	Sediment	Mercury	0.0565	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA7471B	Sediment	Mercury	0.0565	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Nickel	8.19	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Nickel	8.19	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Potassium	1170	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Potassium	1170	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Selenium	0.6	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Selenium	0.6	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Silver	0.89	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Silver	0.89	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Sodium	352	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Sodium	352	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Thallium	0.109	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Thallium	0.109	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Vanadium	17.4	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Vanadium	17.4	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Zinc	3790	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM016	DM016-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Zinc	3790	TRUE	mg/kg	99.5	0.4347	89.38	446174	5421156	OU 1 North	-3.141	1.6313	-0.3549	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Aluminum	6000	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Antimony	19.3	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Arsenic	7.94	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Barium	374	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Beryllium	0.314	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cadmium	1.09	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Calcium	19000	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Chromium	28.2	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Cobalt	12.9	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Copper	427	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Iron	42800	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Lead	125	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Magnesium	5100	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Manganese	825	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA7471B	Sediment	Mercury	0.027	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Nickel	8.65	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Potassium	1070	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Selenium	0.5	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Silver	2.26	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6010C-METDIG	Sediment	Sodium	422	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Thallium	0.086	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Vanadium	17	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM018	DM018-SE-1-100919	2019-10-09	EPA6020A-METDIG	Sediment	Zinc	3400	TRUE	mg/kg	99.7	0.2959	97.59	446204	5421137	OU 1 North	-2.7777	2.503	-0.1786	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Aluminum	4920	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Antimony	10.2	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Arsenic	6.17	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Barium	242	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Beryllium	0.225	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cadmium	1.48	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Calcium	15800	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Chromium	19.3	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cobalt	7.62	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Copper	228	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Iron	24500	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Lead	91	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Magnesium	7230	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Manganese	488	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA7471B	Sediment	Mercury	0.045	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Nickel	8.76	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Potassium	927	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Selenium	0.3	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Silver	1.29	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Sodium	230	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Thallium	0.103	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Vanadium	17.4	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM019	DM019-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Zinc	1830	TRUE	mg/kg	98.4	1.57	134.54	446210	5421184	OU 1 North	-2.7255	0.6889	-0.6791	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Aluminum	8090	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Antimony	33.6	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Arsenic	13.4	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Barium	677	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Beryllium	0.386	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cadmium	1.46	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Calcium	27400	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Chromium	44.4	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cobalt	19	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Copper	849	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Iron	64700	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Lead	195	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Magnesium	6010	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Manganese	1390	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA7471B	Sediment	Mercury	0.072	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Nickel	10.9	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Potassium	1440	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Selenium	0.7	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Silver	2.58	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Sodium	645	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Thallium	0.149	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Vanadium	21.7	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM020	DM020-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Zinc	5700	TRUE	mg/kg	98.5	1.459	165.26	446227	5421211	OU 1 North	-3.353	2.8647	-0.2146	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Aluminum	9710	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Antimony	20.2	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Arsenic	11.1	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Barium	653	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Beryllium	0.397	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cadmium	1.07	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Calcium	27300	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Chromium	56.5	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cobalt	22.7	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Copper	806	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Iron	78700	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Lead	178	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Magnesium	5580	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Manganese	1520	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA7471B	Sediment	Mercury	1.58	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Nickel	11.3	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Potassium	1730	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Selenium	0.85	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Silver	2.13	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Sodium	738	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Thallium	0.097	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Vanadium	25.8	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM022	DM022-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Zinc	6540	TRUE	mg/kg	98.6	1.058	131.21	446236	5421155	OU 1 North	-3.6598	2.1954	0.4142	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Aluminum	8280	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Antimony	23.9	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Arsenic	16.5	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Barium	528	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Beryllium	0.339	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cadmium	0.638	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Calcium	20200	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Chromium	42.9	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cobalt	19.7	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Copper	686	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Iron	59100	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Lead	153	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Magnesium	4200	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Manganese	1200	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA7471B	Sediment	Mercury	0.017	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Nickel	10.1	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Potassium	1390	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Selenium	0.7	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Silver	2.81	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Sodium	607	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Thallium	0.076	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Vanadium	21.6	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM023	DM023-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Zinc	5060	TRUE	mg/kg	99.6	0.3117	153.54	446260	5421164	OU 1 North	-2.3065	3.6662	-0.1538	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Aluminum	5980	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Aluminum	5980	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Antimony	23.3	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Antimony	23.3	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Arsenic	10.1	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Arsenic	10.1	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Barium	370	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Barium	370	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Beryllium	0.337	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Beryllium	0.337	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cadmium	0.909	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cadmium	0.909	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Calcium	16600	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Calcium	16600	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Chromium	29.4	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Chromium	29.4	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Cobalt	14.1	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Copper	435	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Copper	435	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Iron	40500	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Iron	40500	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Lead	102	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Lead	102	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Magnesium	4970	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Magnesium	4970	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Manganese	828	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Manganese	828	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA7471B	Sediment	Mercury	0.166	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA7471B	Sediment	Mercury	0.166	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Nickel	8.49	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Nickel	8.49	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Potassium	1120	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Potassium	1120	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Selenium	0.5	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Selenium	0.5	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Silver	2.71	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Silver	2.71	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Sodium	384	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6010C-METDIG	Sediment	Sodium	384	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Thallium	0.0655	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Thallium	0.0655	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Vanadium	18.7	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Vanadium	18.7	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Zinc	3240	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM024	DM024-SE-1-101519	2019-10-15	EPA6020A-METDIG	Sediment	Zinc	3240	TRUE	mg/kg	99.3	0.686	107.78	446256	5421105	OU 1 North	-2.9492	1.8758	-0.059	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Aluminum	11300	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Antimony	26	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Arsenic	11.9	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Barium	972	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Beryllium	0.556	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Cadmium	0.804	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Calcium	32700	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Chromium	68	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Cobalt	35.3	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Copper	1090	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Iron	101000	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Lead	219	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Magnesium	4820	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Manganese	2130	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA7471B	Sediment	Mercury	0.014	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Nickel	11.1	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Potassium	2130	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Selenium	1.2	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Silver	2.38	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Sodium	1060	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Thallium	0.073	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Vanadium	27.7	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM025	DM025-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Zinc	8940	TRUE	mg/kg	99.8	0.0992	141.43	446317	5421097	OU 1 North	-2.3962	4.8035	0.3876	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Aluminum	8820	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Aluminum	8820	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Antimony	24.6	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Antimony	24.6	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Arsenic	11.8	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Arsenic	11.8	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Barium	593	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Barium	593	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Beryllium	0.363	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Beryllium	0.363	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cadmium	0.712	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cadmium	0.712	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Calcium	22200	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Calcium	22200	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Chromium	45.3	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Chromium	45.3	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cobalt	22.7	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cobalt	22.7	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Copper	705	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Copper	705	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Iron	66000	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Iron	66000	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Lead	148	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Lead	148	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Magnesium	4240	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Magnesium	4240	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Manganese	1350	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA7471B	Sediment	Mercury	0.0195	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA7471B	Sediment	Mercury	0.0195	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Nickel	9.29	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Nickel	9.29	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Potassium	1550	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Potassium	1550	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Selenium	0.735	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Selenium	0.735	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Silver	3.52	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Silver	3.52	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Sodium	691	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Sodium	691	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Thallium	0.095	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Thallium	0.095	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Vanadium	22.2	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Vanadium	22.2	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Zinc	5520	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM026	DM026-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Zinc	5520	TRUE	mg/kg	99.7	0.243	107.580002	446292	5421071	OU 1 North	-2.3637	3.9222	0.1156	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Aluminum	11300	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Antimony	16.8	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Arsenic	9.6	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Barium	670	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Beryllium	0.466	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cadmium	1.08	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Calcium	31600	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Chromium	49.6	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Cobalt	22.1	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Copper	868	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Iron	98300	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Lead	228	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Magnesium	4970	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Manganese	2000	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA7471B	Sediment	Mercury	0.03	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Nickel	8.5	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Potassium	2080	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Selenium	1.4	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Silver	1.57	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6010C-METDIG	Sediment	Sodium	844	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Thallium	0.041	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Vanadium	25	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM027	DM027-SE-1-101419	2019-10-14	EPA6020A-METDIG	Sediment	Zinc	9070	TRUE	mg/kg	99.8	0.2121	105.52	446314	5421057	OU 1 North	-2.8883	4.0055	0.3757	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Aluminum	11200	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Antimony	15.2	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Arsenic	12.1	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Barium	351	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Beryllium	0.374	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Cadmium	1.27	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Calcium	19200	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Chromium	30.6	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Cobalt	15.6	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Copper	450	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Iron	43000	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Lead	270	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Magnesium	7050	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Manganese	990	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA7471B	Sediment	Mercury	0.006	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Nickel	13.2	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Potassium	2050	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Selenium	0.7	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Silver	1.66	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Sodium	1010	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Thallium	0.118	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Vanadium	31.3	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM036	DM036-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Zinc	3880	TRUE	mg/kg	23.9	1.351	71.01	446707	5420447	OU 1 North	-1.8445	2.4636	-0.0155	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Aluminum	12300	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Antimony	26.2	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Arsenic	13	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Barium	1040	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Beryllium	0.57	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Cadmium	0.944	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6010C-METDIG	Sediment	Calcium	33800	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Chromium	74.9	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Cobalt	39.3	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Copper	1170	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6010C-METDIG	Sediment	Iron	115000	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Lead	301	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6010C-METDIG	Sediment	Magnesium	4630	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Manganese	2300	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA7471B	Sediment	Mercury	0.017	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Nickel	10.5	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6010C-METDIG	Sediment	Potassium	2230	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Selenium	1.5	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Silver	2.44	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6010C-METDIG	Sediment	Sodium	1140	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Thallium	0.066	FALSE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Vanadium	28.8	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM038	DM038-SE-1-101919	2019-10-19	EPA6020A-METDIG	Sediment	Zinc	9890	TRUE	mg/kg	89.9	0.5878	99.92	446765	5420446	OU 1 North	-2.6038	4.8715	0.5453	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Aluminum	11400	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Antimony	34.5	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Arsenic	14.2	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Barium	961	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Beryllium	0.551	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Cadmium	0.727	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6010C-METDIG	Sediment	Calcium	31700	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Chromium	72.2	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Cobalt	35.7	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Copper	1130	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6010C-METDIG	Sediment	Iron	111000	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Lead	229	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6010C-METDIG	Sediment	Magnesium	4030	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Manganese	2150	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA7471B	Sediment	Mercury	0.0132	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Nickel	10.5	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6010C-METDIG	Sediment	Potassium	2070	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Selenium	1.4	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Silver	2.44	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6010C-METDIG	Sediment	Sodium	1100	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Thallium	0.077	FALSE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Vanadium	26.9	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM039	DM039-SE-1-101719	2019-10-17	EPA6020A-METDIG	Sediment	Zinc	9090	TRUE	mg/kg	99.2	0.396	105.19	446776	5420446	OU 1 North	-2.3643	5.0695	0.4382	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Aluminum	12700	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Antimony	32.7	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Arsenic	20.1	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Barium	1280	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Beryllium	0.596	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Cadmium	3.04	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Calcium	49800	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Chromium	64.2	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Cobalt	29.8	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Copper	1250	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Iron	124000	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Lead	287	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Magnesium	9340	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Manganese	2340	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA7471B	Sediment	Mercury	0.156	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Nickel	14.7	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Potassium	2090	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Selenium	1.1	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Silver	1.46	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6010C-METDIG	Sediment	Sodium	676	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Thallium	0.2	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Vanadium	29.6	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM044	DM044-SE-1-101619	2019-10-16	EPA6020A-METDIG	Sediment	Zinc	9720	TRUE	mg/kg	89.3	10.365	13.1	446810	5420322	OU 1 North	-3.7679	2.8585	-0.4106	1
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Aluminum	5680	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Antimony	7.11	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Arsenic	11.1	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Barium	624	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Beryllium	0.298	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Cadmium	7.12	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6010C-METDIG	Sediment	Calcium	55400	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Chromium	18	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Cobalt	4.75	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Copper	139	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6010C-METDIG	Sediment	Iron	29300	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Lead	440	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6010C-METDIG	Sediment	Magnesium	22200	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Manganese	478	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA7471B	Sediment	Mercury	1.94	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Nickel	10.8	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6010C-METDIG	Sediment	Potassium	896	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Selenium	0.8	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Silver	0.828	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6010C-METDIG	Sediment	Sodium	206	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Thallium	0.335	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Vanadium	24	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM045	DM045-SE-1-091919	2019-09-19	EPA6020A-METDIG	Sediment	Zinc	2780	TRUE	mg/kg	62.1	37.84	13.96	446834	5420282	OU 1 North	-5.5386	-2.3573	-2.5089	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Aluminum	4430	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Antimony	2.12	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Arsenic	8.9	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Barium	477	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Beryllium	0.211	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Cadmium	5.48	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Calcium	61500	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Chromium	13	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Cobalt	4.09	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Copper	71.6	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Iron	23300	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Lead	312	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Magnesium	27200	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Manganese	369	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA7471B	Sediment	Mercury	0.368	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Nickel	13.7	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Potassium	782	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Selenium	0.75	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Silver	0.473	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Sodium	148	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Thallium	0.312	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Vanadium	26.8	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM046	DM046-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Zinc	1710	TRUE	mg/kg	64.5	35.22	11.51	446852	5420282	OU 1 North	-4.5721	-2.4478	-3.2275	2
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Aluminum	10800	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Antimony	10.4	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Arsenic	23.3	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Barium	222	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Beryllium	0.31	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Cadmium	1.97	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Calcium	19900	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Chromium	19.9	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Cobalt	15.4	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Copper	514	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Iron	57700	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Lead	1170	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Magnesium	5570	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Manganese	986	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA7471B	Sediment	Mercury	0.03	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Nickel	10.8	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Potassium	2250	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Selenium	1	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Silver	1.21	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6010C-METDIG	Sediment	Sodium	1440	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Thallium	0.078	FALSE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Vanadium	33.2	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	DM047	DM047-SE-1-101819	2019-10-18	EPA6020A-METDIG	Sediment	Zinc	9220	TRUE	mg/kg	79.3	1.755	132.76	446817	5420452	OU 1 North	-3.3703	1.6962	0.2376	1
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Aluminum	5230	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Antimony	5.33	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Arsenic	15.1	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Barium	557	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Beryllium	0.26	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Cadmium	12.7	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Calcium	68600	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Chromium	15.6	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Cobalt	4.47	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Copper	142	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Iron	31300	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Lead	698	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Magnesium	29700	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Manganese	569	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA7471B	Sediment	Mercury	1.57	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Nickel	12.5	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Potassium	811	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Selenium	0.98	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Silver	0.856	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Sodium	173	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Thallium	0.408	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Vanadium	26.3	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM050	DM050-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Zinc	3590	TRUE	mg/kg	66.1	33.439	6.21	446899	5420307	OU 1 North	-6.0009	-2.8116	-2.9353	2
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Aluminum	14900	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Antimony	38.7	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Arsenic	20.4	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Barium	1430	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Beryllium	0.742	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Cadmium	0.836	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6010C-METDIG	Sediment	Calcium	56000	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Chromium	120	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Cobalt	71.6	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Copper	2010	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6010C-METDIG	Sediment	Iron	160000	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Lead	335	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6010C-METDIG	Sediment	Magnesium	6550	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Manganese	3590	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA7471B	Sediment	Mercury	0.018	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Nickel	13.3	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6010C-METDIG	Sediment	Potassium	3050	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Selenium	1.6	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Silver	4.96	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6010C-METDIG	Sediment	Sodium	1980	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Thallium	0.096	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Vanadium	35.3	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM057	DM057-SE-1-091819	2019-09-18	EPA6020A-METDIG	Sediment	Zinc	14300	TRUE	mg/kg	96.7	2.211	6.5	447032	5420489	OU 1 North	-2.3201	5.6604	0.3442	1
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Aluminum	6180	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Antimony	5.57	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Arsenic	8.8	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Barium	397	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Beryllium	0.275	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Cadmium	4.32	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Calcium	37100	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Chromium	18.7	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Cobalt	6.55	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Copper	159	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Iron	29200	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Lead	200	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Magnesium	18800	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Manganese	499	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA7471B	Sediment	Mercury	0.173	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Nickel	12.5	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Potassium	1130	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Selenium	0.5	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Silver	0.609	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6010C-METDIG	Sediment	Sodium	179	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Thallium	0.231	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Vanadium	23.9	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	DM061	DM061-SE-1-101219	2019-10-12	EPA6020A-METDIG	Sediment	Zinc	2250	TRUE	mg/kg	78.5	21.39	49.43	447099	5420647	OU 1 North	-3.7467	-1.17	-1.9374	2
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	22300	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	22300	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	25.6	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	25.6	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	22.4	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	22.4	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	1340	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	1340	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.807	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.807	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	1.01	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	1.01	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	63000	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	63000	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	101	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	101	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	39.9	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	39.9	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	1780	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	1780	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	225000	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	225000	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	584	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	584	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	6700	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	6700	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	3930	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	3930	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.008	FALSE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.008	FALSE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	13	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	13	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	4200	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	4200	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	2.15	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	2.15	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	2.69	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	2.69	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	1950	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	1950	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.0945	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.0945	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	41.5	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	41.5	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	19500	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV001	EV001-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	19500	TRUE	mg/kg	97.3	0.751	48.43	422460	5391534	OU 1 South	-2.4013	5.4747	0.2069	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Aluminum	21300	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Antimony	25.9	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Arsenic	19.1	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Barium	1390	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Beryllium	0.772	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cadmium	0.99	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Calcium	60800	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Chromium	102	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cobalt	45.4	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Copper	1870	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Iron	194000	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Lead	382	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Magnesium	6880	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Manganese	3720	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA7471B	Sediment	Mercury	0.005	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Nickel	12.3	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Potassium	4160	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Selenium	1.87	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Silver	2.74	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Sodium	2180	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Thallium	0.062	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Vanadium	42.2	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV002	EV002-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Zinc	17200	TRUE	mg/kg	97.4	0.1308	146.63	422495	5391673	OU 1 South	-2.0704	5.7572	0.1973	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Aluminum	15000	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Antimony	22.3	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Arsenic	17.8	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Barium	969	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Beryllium	0.573	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Cadmium	0.884	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Calcium	43500	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Chromium	79.5	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Cobalt	35.4	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Copper	1270	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Iron	137000	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Lead	354	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Magnesium	5510	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Manganese	2650	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA7471B	Sediment	Mercury	0.01	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Nickel	10.8	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Potassium	2840	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Selenium	1.46	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Silver	2.21	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Sodium	1440	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Thallium	0.065	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Vanadium	31.4	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV003	EV003-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Zinc	12500	TRUE	mg/kg	35.1	0.1907	2.43	422512	5391491	OU 1 South	-2.3741	5.0697	0.1988	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Aluminum	20600	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Antimony	29	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Arsenic	20.1	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Barium	1420	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Beryllium	0.836	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Cadmium	1.36	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Calcium	60300	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Chromium	99	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Cobalt	42.1	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Copper	1900	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Iron	209000	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Lead	487	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Magnesium	7690	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Manganese	3840	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA7471B	Sediment	Mercury	0.008	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Nickel	12.6	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Potassium	4250	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Selenium	2.08	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Silver	2.4	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Sodium	2020	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Thallium	0.083	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Vanadium	40.6	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV005	EV005-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Zinc	18400	TRUE	mg/kg	97.2	1.974	61.14	422606	5391705	OU 1 South	-2.4798	5.3561	0.2238	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Aluminum	22100	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Antimony	26.8	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Arsenic	19.9	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Barium	1370	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Beryllium	0.788	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Cadmium	0.919	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Calcium	61100	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Chromium	102	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Cobalt	44	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Copper	1970	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Iron	208000	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Lead	541	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Magnesium	6670	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Manganese	4000	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA7471B	Sediment	Mercury	0.007	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Nickel	12.7	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Potassium	4120	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Selenium	2.17	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Silver	2.57	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Sodium	1860	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Thallium	0.048	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Vanadium	40.2	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV008	EV008-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Zinc	19300	TRUE	mg/kg	98.4	1.473	37.26	422713	5391655	OU 1 South	-2.3486	5.6301	0.2828	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Aluminum	16200	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Antimony	26.7	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Arsenic	18.6	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Barium	1050	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Beryllium	0.656	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Cadmium	0.967	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6010C-METDIG	Sediment	Calcium	47500	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Chromium	85.7	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Cobalt	41.4	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Copper	1340	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6010C-METDIG	Sediment	Iron	151000	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Lead	371	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6010C-METDIG	Sediment	Magnesium	7300	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Manganese	2890	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA7471B	Sediment	Mercury	0.012	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Nickel	12.7	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6010C-METDIG	Sediment	Potassium	3450	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Selenium	1.8	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Silver	3.1	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6010C-METDIG	Sediment	Sodium	1800	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Thallium	0.063	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Vanadium	35.8	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV010	EV010-SE-1-091219	2019-09-12	EPA6020A-METDIG	Sediment	Zinc	13100	TRUE	mg/kg	73.9	0.9787	42.68	422657	5391528	OU 1 South	-2.2258	4.9599	0.182	1
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Aluminum	4530	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Antimony	0.39	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Arsenic	8.8	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Barium	59.4	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Beryllium	0.168	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Cadmium	0.748	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Calcium	19300	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Chromium	5.88	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Cobalt	2.48	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Copper	12.1	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Iron	16300	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Lead	26	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Magnesium	12000	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Manganese	179	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA7471B	Sediment	Mercury	0.014	FALSE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Nickel	9.01	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Potassium	474	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Silver	0.058	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Sodium	50	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Thallium	0.079	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Vanadium	15.4	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV011	EV011-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Zinc	158	TRUE	mg/kg	33.7	4.369	164.11	422759	5391458	OU 1 South	0.0125	-1.7726	-3.0345	2
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Aluminum	12200	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Antimony	19.8	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Arsenic	12.2	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Barium	775	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Beryllium	0.528	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Cadmium	0.755	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6010C-METDIG	Sediment	Calcium	53100	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Chromium	61.2	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Cobalt	26.1	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Copper	1020	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6010C-METDIG	Sediment	Iron	115000	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Lead	251	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6010C-METDIG	Sediment	Magnesium	11800	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Manganese	2200	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA7471B	Sediment	Mercury	0.016	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Nickel	10.3	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6010C-METDIG	Sediment	Potassium	2750	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Selenium	1.29	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Silver	2.06	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6010C-METDIG	Sediment	Sodium	1280	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Thallium	0.052	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Vanadium	27.5	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV012	EV012-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Zinc	9970	TRUE	mg/kg	72.4	0.6314	155.21	422815	5391576	OU 1 South	-2.3524	4.2543	-0.5128	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Aluminum	17500	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Antimony	26.8	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Arsenic	21.8	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Barium	1110	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Beryllium	0.721	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Cadmium	0.983	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6010C-METDIG	Sediment	Calcium	50900	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Chromium	93	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Cobalt	44.7	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Copper	1540	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6010C-METDIG	Sediment	Iron	190000	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Lead	593	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6010C-METDIG	Sediment	Magnesium	7010	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Manganese	3300	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA7471B	Sediment	Mercury	0.009	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Nickel	13.4	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6010C-METDIG	Sediment	Potassium	3700	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Selenium	1.9	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Silver	2.48	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6010C-METDIG	Sediment	Sodium	1770	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Thallium	0.06	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Vanadium	39.5	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV013	EV013-SE-1-091319	2019-09-13	EPA6020A-METDIG	Sediment	Zinc	15900	TRUE	mg/kg	82.5	0.82	143.32	422909	5391591	OU 1 South	-2.3179	5.1998	0.2967	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Aluminum	8050	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Antimony	14	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Arsenic	7.96	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Barium	482	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Beryllium	0.347	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Cadmium	0.9	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Calcium	24300	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Chromium	31.3	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Cobalt	16.1	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Copper	529	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Iron	71300	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Lead	214	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Magnesium	4360	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Manganese	1180	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA7471B	Sediment	Mercury	0.014	FALSE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Nickel	10.1	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Potassium	1750	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Selenium	0.7	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Silver	0.95	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Sodium	808	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Thallium	0.061	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Vanadium	20.2	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV020	EV020-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Zinc	5680	TRUE	mg/kg			144.3	423491	5391765	OU 1 South	-2.6498	3.5979	0.1202	1
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Aluminum	7250	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Antimony	0.38	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Arsenic	4.5	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Barium	98.8	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Beryllium	0.256	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Cadmium	0.827	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Calcium	7730	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Chromium	14.7	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Cobalt	4.64	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Copper	20.4	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Iron	15400	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Lead	32.6	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Magnesium	6000	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Manganese	270	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Nickel	14.9	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Potassium	967	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Selenium	0.3	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Silver	0.173	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Sodium	195	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Thallium	0.112	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Vanadium	25.6	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV022	EV022-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Zinc	165	TRUE	mg/kg			231.66	423602	5391716	OU 1 South	-0.8874	-2.05	-0.0544	2
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Aluminum	13800	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Antimony	19.6	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Arsenic	14.8	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Barium	975	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Beryllium	0.549	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Cadmium	1.42	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Calcium	40300	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Chromium	75.7	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Cobalt	34.6	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Copper	1290	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Iron	134000	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Lead	301	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Magnesium	6790	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Manganese	2470	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA7471B	Sediment	Mercury	0.026	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Nickel	11.9	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Potassium	2550	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Selenium	1.31	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Silver	1.99	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6010C-METDIG	Sediment	Sodium	1170	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Thallium	0.126	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Vanadium	36	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV026	EV026-SE-1-092019	2019-09-20	EPA6020A-METDIG	Sediment	Zinc	11500	TRUE	mg/kg	97.8	1.975	143.23	423840	5392160	OU 1 South	-2.7227	4.2907	0.2794	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Aluminum	18000	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Antimony	24.1	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Arsenic	17.3	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Barium	1120	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Beryllium	0.636	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cadmium	1.05	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Calcium	48200	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Chromium	85.8	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cobalt	41.3	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Copper	1530	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Iron	159000	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Lead	429	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Magnesium	6410	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Manganese	3010	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA7471B	Sediment	Mercury	0.006	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Nickel	12.5	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Potassium	3390	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Selenium	1.67	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Silver	2.45	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Sodium	1640	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Thallium	0.065	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Vanadium	38.8	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV027	EV027-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Zinc	14400	TRUE	mg/kg	74.1	0.0787	15.27	423869	5392028	OU 1 South	-2.232	5.251	0.2833	1
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Aluminum	6910	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Antimony	0.529	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Arsenic	5.82	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Barium	164	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Beryllium	0.288	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Cadmium	1.23	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6010C-METDIG	Sediment	Calcium	7880	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Chromium	16.2	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Cobalt	5.21	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Copper	31	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6010C-METDIG	Sediment	Iron	19000	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Lead	62.4	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6010C-METDIG	Sediment	Magnesium	6880	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Manganese	242	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA7471B	Sediment	Mercury	0.044	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Nickel	14.4	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6010C-METDIG	Sediment	Potassium	1000	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Selenium	0.3	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Silver	0.251	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6010C-METDIG	Sediment	Sodium	177	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Thallium	0.133	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Vanadium	27.9	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV036	EV036-SE-1-091419	2019-09-14	EPA6020A-METDIG	Sediment	Zinc	303	TRUE	mg/kg	35.1	12.729	198.1	424414	5392091	OU 1 South	-0.5109	-1.1205	-0.4426	2
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Aluminum	21800	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Aluminum	21800	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Antimony	21.1	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Antimony	21.1	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Arsenic	16.9	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Arsenic	16.9	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Barium	1200	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Barium	1200	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Beryllium	0.706	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Beryllium	0.706	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Cadmium	0.664	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Cadmium	0.664	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Calcium	54700	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Calcium	54700	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Chromium	89.4	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Chromium	89.4	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Cobalt	37.4	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Cobalt	37.4	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Copper	1670	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Copper	1670	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Iron	189000	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Iron	189000	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Lead	381	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Lead	381	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Magnesium	6910	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Magnesium	6910	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Manganese	3400	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Manganese	3400	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA7471B	Sediment	Mercury	0.0035	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA7471B	Sediment	Mercury	0.0035	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Nickel	12.5	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Nickel	12.5	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Potassium	4200	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Potassium	4200	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Selenium	1.94	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Selenium	1.94	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Silver	2.31	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Silver	2.31	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Sodium	2040	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6010C-METDIG	Sediment	Sodium	2040	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Thallium	0.053	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Thallium	0.053	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Vanadium	44.9	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Vanadium	44.9	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Zinc	16100	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV037	EV037-SE-1-092319	2019-09-23	EPA6020A-METDIG	Sediment	Zinc	16100	TRUE	mg/kg	98.1	1.027	59.68	424269	5392319	OU 1 South	-1.7725	5.7534	0.1578	1
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Aluminum	14700	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Antimony	1.48	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Arsenic	8.51	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Barium	458	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Beryllium	0.668	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cadmium	4.95	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Calcium	12800	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Chromium	33.2	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cobalt	10.5	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Copper	102	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Iron	28500	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Lead	205	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Magnesium	11600	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Manganese	434	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA7471B	Sediment	Mercury	0.514	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Nickel	27.6	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Potassium	2260	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Selenium	1	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Silver	1.44	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Sodium	240	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Thallium	0.485	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Vanadium	41.3	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV044	EV044-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Zinc	810	TRUE	mg/kg	18.6	81.3	338.52	425000	5392738	OU 1 South	-2.0799	-2.167	0.213	2
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Aluminum	19400	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Antimony	30.7	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Arsenic	20	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Barium	1400	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Beryllium	0.736	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cadmium	0.862	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Calcium	57600	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Chromium	110	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cobalt	48.2	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Copper	1950	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Iron	180000	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Lead	403	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Magnesium	6940	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Manganese	3550	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA7471B	Sediment	Mercury	0.006	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Nickel	14.5	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Potassium	3580	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Selenium	1.66	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Silver	2.85	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Sodium	1790	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Thallium	0.08	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Vanadium	38.1	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV048	EV048-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Zinc	16400	TRUE	mg/kg	93.5	0.877	5.43	424638	5392930	OU 1 South	-2.1321	5.6518	0.1671	1
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Aluminum	4610	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Antimony	0.102	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Arsenic	1.11	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Barium	48.7	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Beryllium	0.191	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Cadmium	0.22	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Calcium	2250	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Chromium	14.3	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Cobalt	3.37	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Copper	5.87	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Iron	8490	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Lead	12.1	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Magnesium	2620	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Manganese	104	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA7471B	Sediment	Mercury	0.009	FALSE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Nickel	13.5	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Potassium	958	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Silver	0.031	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Sodium	100	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Thallium	0.081	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Vanadium	13.5	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV049	EV049-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Zinc	36.4	TRUE	mg/kg	87.9	7.785	54.71	424687	5392943	OU 1 South	2.5398	-0.7157	0.993	3
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Aluminum	21500	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Antimony	33.9	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Arsenic	24.7	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Barium	1590	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Beryllium	0.794	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cadmium	1.11	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Calcium	63900	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Chromium	116	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cobalt	51.9	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Copper	2180	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Iron	200000	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Lead	480	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Magnesium	6590	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Manganese	4010	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA7471B	Sediment	Mercury	0.008	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Nickel	14.6	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Potassium	4050	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Selenium	2.07	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Silver	3.93	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Sodium	2040	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Thallium	0.067	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Vanadium	40.6	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV051	EV051-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Zinc	18500	TRUE	mg/kg	95.2	0.785	24.06	424659	5393066	OU 1 South	-2.3688	5.6377	0.1802	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	21100	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	32.6	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	21.4	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	1340	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.776	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	0.974	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	60700	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	92.9	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	39	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	1700	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	194000	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	435	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	6930	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	3540	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.015	FALSE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	14.9	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	3930	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	1.7	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	2.31	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	1920	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.097	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	41.1	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV052	EV052-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	16700	TRUE	mg/kg	95	1.647	27.02	424619	5393165	OU 1 South	-2.4312	5.0758	0.1046	1
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Aluminum	13100	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Antimony	2.33	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Arsenic	10.9	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Barium	493	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Beryllium	0.697	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Cadmium	7.76	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Calcium	11600	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Chromium	34.2	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Cobalt	10.1	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Copper	139	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Iron	28000	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Lead	393	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Magnesium	11100	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Manganese	418	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA7471B	Sediment	Mercury	1.53	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Nickel	26.8	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Potassium	1960	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Selenium	1.3	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Silver	1.9	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Sodium	238	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Thallium	0.593	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Vanadium	38.3	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV054	EV054-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Zinc	1190	TRUE	mg/kg	22.3	77.7	398.45	425059	5393186	OU 1 South	-3.247	-2.7546	0.4138	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Aluminum	10700	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Antimony	1.4	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Arsenic	7.48	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Barium	620	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Beryllium	0.57	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Cadmium	4.09	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Calcium	21100	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Chromium	27	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Cobalt	8.69	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Copper	76.5	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Iron	24500	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Lead	183	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Magnesium	16400	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Manganese	386	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA7471B	Sediment	Mercury	0.264	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Nickel	22.9	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Potassium	1940	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Selenium	0.8	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Silver	1.12	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Sodium	191	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Thallium	0.376	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Vanadium	36.6	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV057	EV057-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Zinc	805	TRUE	mg/kg	27.8	72.26	187.65	424824	5393493	OU 1 South	-2.3444	-2.0521	-0.9691	2
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Aluminum	21100	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Antimony	30.5	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Arsenic	18.7	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Barium	1550	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Beryllium	0.821	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cadmium	0.779	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Calcium	61200	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Chromium	115	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Cobalt	51.6	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Copper	2170	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Iron	202000	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Lead	356	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Magnesium	6570	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Manganese	3990	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA7471B	Sediment	Mercury	0.011	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Nickel	14.2	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Potassium	3800	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Selenium	1.88	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Silver	3.43	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6010C-METDIG	Sediment	Sodium	1980	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Thallium	0.057	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Vanadium	37.6	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV060	EV060-SE-1-092119	2019-09-21	EPA6020A-METDIG	Sediment	Zinc	18100	TRUE	mg/kg	99.7	0.2761	8.1	424565	5393683	OU 1 South	-2.2394	5.7887	0.311	1
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Aluminum	14400	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Antimony	2.82	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Arsenic	13	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Barium	530	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Beryllium	0.785	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Cadmium	10.2	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6010C-METDIG	Sediment	Calcium	12700	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Chromium	39	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Cobalt	11.2	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Copper	172	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6010C-METDIG	Sediment	Iron	30600	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Lead	462	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6010C-METDIG	Sediment	Magnesium	11700	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Manganese	458	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA7471B	Sediment	Mercury	1.28	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Nickel	29.2	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6010C-METDIG	Sediment	Potassium	2290	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Selenium	1.6	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Silver	2.76	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6010C-METDIG	Sediment	Sodium	256	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Thallium	0.803	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Vanadium	42.7	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV063	EV063-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Zinc	1290	TRUE	mg/kg	11.4	88.5	400.48	424891	5393900	OU 1 South	-3.2556	-2.7437	0.4642	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Aluminum	9070	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Antimony	1.8	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Arsenic	6	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Barium	544	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Beryllium	0.482	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Cadmium	3.6	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6010C-METDIG	Sediment	Calcium	21800	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Chromium	23.8	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Cobalt	7.66	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Copper	67.3	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6010C-METDIG	Sediment	Iron	22600	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Lead	149	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6010C-METDIG	Sediment	Magnesium	16400	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Manganese	361	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA7471B	Sediment	Mercury	0.235	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Nickel	19.9	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6010C-METDIG	Sediment	Potassium	1750	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Selenium	0.7	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Silver	0.87	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6010C-METDIG	Sediment	Sodium	195	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Thallium	0.387	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Vanadium	32.1	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV064	EV064-SE-1-091019	2019-09-10	EPA6020A-METDIG	Sediment	Zinc	832	TRUE	mg/kg	41.9	58.07	191	424646	5393930	OU 1 South	-2.3914	-1.9312	-1.1047	2
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	22900	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	22900	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	32.6	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	32.6	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	22.7	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	22.7	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	1610	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	1610	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.838	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.838	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.93	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.93	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	68100	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	68100	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	118	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	118	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	51	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	51	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	2300	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	2300	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	231000	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	231000	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	507	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	507	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	7030	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	7030	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	4240	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	4240	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.006	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.006	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	14.3	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	14.3	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	4300	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	4300	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	2.06	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	2.06	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	4.09	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	4.09	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	2150	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	2150	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.064	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.064	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	41.2	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	41.2	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	20000	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV065	EV065-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	20000	TRUE	mg/kg	95.5	0.605	19.73	424463	5393914	OU 1 South	-2.239	5.9189	0.185	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	23500	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	30.6	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	20	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	1660	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.876	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.75	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	69800	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	124	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	56.2	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	2300	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	242000	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	373	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	7030	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	4400	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.01	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	14.8	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	4360	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	2.17	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	3.4	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	2140	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.062	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	42.9	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV066	EV066-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	19700	TRUE	mg/kg	93.2	2.176	18.73	424475	5393993	OU 1 South	-2.074	5.9767	0.2749	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	23200	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	33	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	21.2	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	1690	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.87	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.984	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	73500	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	121	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	52	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	2410	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	250000	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	448	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	6790	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	4420	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.016	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	13.9	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	4360	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	2.05	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	3.8	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	2170	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.05	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	40.8	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV069	EV069-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	20900	TRUE	mg/kg	97.1	1.874	23.87	424426	5394119	OU 1 South	-2.5188	5.7299	0.2733	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	23100	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	34.3	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	23.3	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	1730	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.882	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.874	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	72300	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	126	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	56.6	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	2460	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	245000	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	465	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	6800	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	4460	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.007	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	14.3	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	4310	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	2.08	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	3.63	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	2210	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.048	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	40.7	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV071	EV071-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	20500	TRUE	mg/kg	97.8	0.555	22.2	424433	5394262	OU 1 South	-2.2219	6.0954	0.2008	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	22300	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	22300	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	42.6	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	42.6	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	23.3	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	23.3	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	1740	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	1740	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.883	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.883	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	0.958	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	0.958	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	69700	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	69700	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	123	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	123	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	50.5	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	50.5	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	2170	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	2170	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	228000	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	228000	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	461	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	461	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	6480	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	6480	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	4340	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	4340	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.012	FALSE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.012	FALSE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	15.6	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	15.6	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	4170	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	4170	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	2.05	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	2.05	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	3.65	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	3.65	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	2160	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	2160	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.057	FALSE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.057	FALSE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	41.6	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	41.6	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	20000	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV072	EV072-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	20000	TRUE	mg/kg	96.8	2.342	55.58	424378	5394303	OU 1 South	-2.4117	5.707	0.2195	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Aluminum	19700	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Antimony	38.7	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Arsenic	21.5	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Barium	1540	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Beryllium	0.922	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Cadmium	0.734	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Calcium	64700	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Chromium	129	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Cobalt	56	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Copper	2340	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Iron	215000	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Lead	328	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Magnesium	7280	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Manganese	4120	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA7471B	Sediment	Mercury	0.011	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Nickel	16.2	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Potassium	4360	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Selenium	2.1	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Silver	3.45	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6010C-METDIG	Sediment	Sodium	2260	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Thallium	0.061	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Vanadium	42.7	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	EV075	EV075-SE-1-091119	2019-09-11	EPA6020A-METDIG	Sediment	Zinc	18200	TRUE	mg/kg	97.7	2.1448	25.7	424380	5394452	OU 1 South	-1.9888	5.8204	0.2799	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Aluminum	14100	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Antimony	10.7	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Arsenic	11.9	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Barium	646	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Beryllium	0.546	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Cadmium	2.78	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Calcium	38400	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Chromium	37.9	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Cobalt	18.2	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Copper	803	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Iron	107000	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Lead	534	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Magnesium	9730	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Manganese	2170	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA7471B	Sediment	Mercury	0.13	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Nickel	9.61	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Potassium	2580	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Selenium	1.4	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Silver	1.46	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Sodium	1060	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Thallium	0.181	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Vanadium	30.4	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS001	JS001-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Zinc	11100	TRUE	mg/kg	98.1	1.655	226.51	430964	5407513	OU 1 South	-3.8695	2.3651	0.119	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Aluminum	17600	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Antimony	8.29	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Arsenic	12.8	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Barium	665	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Beryllium	0.635	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Cadmium	2.49	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Calcium	40900	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Chromium	43.3	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Cobalt	16.5	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Copper	872	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Iron	141000	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Lead	671	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Magnesium	7630	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Manganese	2960	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA7471B	Sediment	Mercury	0.027	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Nickel	8.29	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Potassium	3160	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Selenium	1.8	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Silver	1.45	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6010C-METDIG	Sediment	Sodium	1150	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Thallium	0.165	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Vanadium	38.7	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	JS002	JS002-SE-1-101019	2019-10-10	EPA6020A-METDIG	Sediment	Zinc	15200	TRUE	mg/kg	96.4	1.612	256.29	431068	5407575	OU 1 South	-3.4316	3.3187	0.3554	1
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Aluminum	3890	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Aluminum	3890	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Antimony	0.04	FALSE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Antimony	0.04	FALSE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Arsenic	1.3	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Arsenic	1.3	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Barium	27.9	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Barium	27.9	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Beryllium	0.176	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Beryllium	0.176	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Cadmium	0.14	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Cadmium	0.14	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Calcium	1940	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Calcium	1940	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Chromium	4.95	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Chromium	4.95	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Cobalt	2.39	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Cobalt	2.39	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Copper	4.89	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Copper	4.89	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Iron	8080	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Iron	8080	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Lead	6.8	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Lead	6.8	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Magnesium	2360	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Magnesium	2360	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Manganese	175	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Manganese	175	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Nickel	6.03	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Nickel	6.03	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Potassium	541	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Potassium	541	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Silver	0.025	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Silver	0.025	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Sodium	129	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Sodium	129	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Thallium	0.049	FALSE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Thallium	0.049	FALSE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Vanadium	14	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Vanadium	14	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Zinc	27.8	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF001	REF001-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Zinc	27.8	TRUE	mg/kg	88.7	0.0955	83.20808221	447454	5446001	LCR above Trail	2.9428	0.3409	0.4712	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Aluminum	2730	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Antimony	0.033	FALSE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Arsenic	0.83	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Barium	21.2	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Beryllium	0.135	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Cadmium	0.089	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Calcium	1580	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Chromium	5.88	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Cobalt	1.74	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Copper	3.36	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Iron	5670	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Lead	3.5	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Magnesium	1800	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Manganese	112	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Nickel	5.36	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Potassium	438	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Selenium	0.1	FALSE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Silver	0.023	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6010C-METDIG	Sediment	Sodium	61	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Thallium	0.032	FALSE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Vanadium	9.37	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF002	REF002-SE-1-092819	2019-09-28	EPA6020A-METDIG	Sediment	Zinc	23.1	TRUE	mg/kg	99.9	0.103	111.4008508	447492	5446070	LCR above Trail	3.2002	0.1286	0.5202	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Aluminum	2510	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Aluminum	2510	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Antimony	0.05	FALSE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Antimony	0.05	FALSE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Arsenic	0.7	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Arsenic	0.7	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Barium	17.6	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Barium	17.6	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Beryllium	0.127	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Beryllium	0.127	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Cadmium	0.093	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Cadmium	0.093	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Calcium	1570	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Calcium	1570	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Chromium	9.09	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Chromium	9.09	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Cobalt	1.73	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Cobalt	1.73	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Copper	3.39	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Copper	3.39	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Iron	7700	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Iron	7700	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Lead	4.57	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Lead	4.57	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Magnesium	1610	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Magnesium	1610	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Manganese	76.2	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Manganese	76.2	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Nickel	5.08	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Nickel	5.08	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Potassium	430	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Potassium	430	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Silver	0.018	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Silver	0.018	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Sodium	59	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Sodium	59	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Thallium	0.035	FALSE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Thallium	0.035	FALSE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Vanadium	15.8	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Vanadium	15.8	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Zinc	26.5	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF003	REF003-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Zinc	26.5	TRUE	mg/kg	99.3	0.717	111.0025224	447871	5446882	LCR above Trail	3.4103	0.0345	1.0277	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Aluminum	4210	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Aluminum	4210	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Antimony	0.204	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Antimony	0.204	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Arsenic	1.94	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Arsenic	1.94	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Barium	45.1	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Barium	45.1	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Beryllium	0.179	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Beryllium	0.179	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Cadmium	0.196	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Cadmium	0.196	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Calcium	3360	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Calcium	3360	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Chromium	13	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Chromium	13	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Cobalt	3.27	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Cobalt	3.27	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Copper	4.98	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Copper	4.98	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Iron	10200	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Iron	10200	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Lead	24.2	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Lead	24.2	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Magnesium	2840	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Magnesium	2840	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Manganese	145	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA7471B	Sediment	Mercury	0.003	FALSE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA7471B	Sediment	Mercury	0.003	FALSE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Nickel	7.76	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Nickel	7.76	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Potassium	818	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Potassium	818	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Selenium	0.1	FALSE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Selenium	0.1	FALSE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Silver	0.031	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Silver	0.031	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Sodium	62	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6010C-METDIG	Sediment	Sodium	62	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Thallium	0.065	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Thallium	0.065	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Vanadium	23	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Vanadium	23	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Zinc	62.5	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF004	REF004-SE-1-092719	2019-09-27	EPA6020A-METDIG	Sediment	Zinc	62.5	TRUE	mg/kg	77.4	1.514	102.6553363	447859	5446933	LCR above Trail	2.4096	-0.3397	0.3397	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Aluminum	2440	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Antimony	0.039	FALSE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Arsenic	0.85	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Barium	22.6	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Beryllium	0.128	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Cadmium	0.091	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Calcium	1550	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Chromium	7.87	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Cobalt	2.13	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Copper	4.95	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Iron	7720	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Lead	3.61	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Magnesium	1800	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Manganese	79.6	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Nickel	6.01	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Potassium	444	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Silver	0.025	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Sodium	49	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Thallium	0.043	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Vanadium	13.4	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF005	REF005-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Zinc	22.9	TRUE	mg/kg	89.3	0.202	32.72284563	448591	5450159	LCR above Trail	3.3442	0.1609	0.6975	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Aluminum	2990	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Antimony	0.034	FALSE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Arsenic	0.96	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Barium	32.8	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Beryllium	0.164	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Cadmium	0.203	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Calcium	2000	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Chromium	9.48	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Cobalt	2.18	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Copper	3.77	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Iron	7680	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Lead	5.64	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Magnesium	2210	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Manganese	96.2	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Nickel	7.86	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Potassium	599	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Silver	0.025	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Sodium	56	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Thallium	0.048	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Vanadium	12.4	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF006	REF006-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Zinc	36.1	TRUE	mg/kg	88.9	0.929	87.94914846	448649	5450148	LCR above Trail	2.8664	-0.2932	0.6029	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Aluminum	3410	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Antimony	0.031	FALSE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Arsenic	1.49	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Barium	25.3	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Beryllium	0.142	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Cadmium	0.104	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6010C-METDIG	Sediment	Calcium	1590	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Chromium	7.21	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Cobalt	2.27	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Copper	4.41	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6010C-METDIG	Sediment	Iron	7710	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Lead	5.18	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6010C-METDIG	Sediment	Magnesium	2330	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Manganese	125	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Nickel	6.13	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6010C-METDIG	Sediment	Potassium	612	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Selenium	0.1	FALSE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Silver	0.023	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6010C-METDIG	Sediment	Sodium	63	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Thallium	0.043	FALSE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Vanadium	12.6	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF007	REF007-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Zinc	33.9	TRUE	mg/kg	95	1.273	144.6799334	448723	5450204	LCR above Trail	3.2827	0.0944	0.428	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Aluminum	2770	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Antimony	0.034	FALSE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Arsenic	0.95	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Barium	26.3	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Beryllium	0.12	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Cadmium	0.093	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6010C-METDIG	Sediment	Calcium	1680	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Chromium	7.21	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Cobalt	1.84	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Copper	3.97	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6010C-METDIG	Sediment	Iron	6060	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Lead	4.18	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6010C-METDIG	Sediment	Magnesium	1780	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Manganese	78.4	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Nickel	5.55	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6010C-METDIG	Sediment	Potassium	519	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Silver	0.023	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6010C-METDIG	Sediment	Sodium	65	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Thallium	0.036	FALSE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Vanadium	9.92	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF008	REF008-SE-1-093019	2019-09-30	EPA6020A-METDIG	Sediment	Zinc	29.7	TRUE	mg/kg	93.8	0.3927	33.49765868	448617	5450237	LCR above Trail	2.993	0.0734	0.3842	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Aluminum	3040	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Antimony	0.027	FALSE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Arsenic	0.66	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Barium	32.2	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Beryllium	0.154	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Cadmium	0.095	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Calcium	1790	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Chromium	7.47	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Cobalt	2.01	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Copper	3.75	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Iron	6700	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Lead	3.55	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Magnesium	2080	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Manganese	90.9	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Nickel	5.85	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Potassium	539	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Selenium	0.1	FALSE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Silver	0.023	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6010C-METDIG	Sediment	Sodium	68	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Thallium	0.038	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Vanadium	11.1	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF009A	REF009A-SE-1-100219	2019-10-02	EPA6020A-METDIG	Sediment	Zinc	25.3	TRUE	mg/kg	99.3	0.3307	46.07876795	448651	5450377	LCR above Trail	3.2064	0.2034	0.5532	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Aluminum	2450	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Antimony	0.035	FALSE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Arsenic	1.19	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Barium	37.9	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Beryllium	0.124	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Cadmium	0.106	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Calcium	1740	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Chromium	7.12	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Cobalt	1.95	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Copper	3.76	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Iron	6720	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Lead	4.41	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Magnesium	1810	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Manganese	112	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Nickel	7.11	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Potassium	548	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Silver	0.02	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6010C-METDIG	Sediment	Sodium	55	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Thallium	0.041	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Vanadium	11.7	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF010	REF010-SE-1-100319	2019-10-03	EPA6020A-METDIG	Sediment	Zinc	24.5	TRUE	mg/kg	85.9	0.0699	21.35712785	448688	5450497	LCR above Trail	2.9716	0.1873	0.123	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Aluminum	2950	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Antimony	0.04	FALSE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Antimony	0.04	FALSE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Arsenic	0.9	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Arsenic	0.9	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Barium	41	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Barium	41	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Beryllium	0.158	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Beryllium	0.158	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Cadmium	0.109	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Cadmium	0.109	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6010C-METDIG	Sediment	Calcium	1830	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6010C-METDIG	Sediment	Calcium	1830	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Chromium	8.92	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Chromium	8.92	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Cobalt	2.18	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Cobalt	2.18	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Copper	3.36	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Copper	3.36	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6010C-METDIG	Sediment	Iron	7260	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6010C-METDIG	Sediment	Iron	7260	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Lead	4.94	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Lead	4.94	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6010C-METDIG	Sediment	Magnesium	2050	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6010C-METDIG	Sediment	Magnesium	2050	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Manganese	94.8	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Manganese	94.8	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Nickel	7.05	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Nickel	7.05	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6010C-METDIG	Sediment	Potassium	583	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6010C-METDIG	Sediment	Potassium	583	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Silver	0.0265	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Silver	0.0265	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6010C-METDIG	Sediment	Sodium	64.5	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6010C-METDIG	Sediment	Sodium	64.5	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Thallium	0.0505	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Thallium	0.0505	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Vanadium	11.2	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Vanadium	11.2	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Zinc	36.4	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	REF011	REF011-SE-1-100119	2019-10-01	EPA6020A-METDIG	Sediment	Zinc	36.4	TRUE	mg/kg	99.5	0.526	109.3961994	451256	5453271	LCR above Trail	2.9695	0.1781	0.4597	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Aluminum	3260	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Antimony	0.04	FALSE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Arsenic	1	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Barium	29.1	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Beryllium	0.177	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Cadmium	0.209	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6010C-METDIG	Sediment	Calcium	2360	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Chromium	8.57	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Cobalt	2.12	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Copper	3.72	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6010C-METDIG	Sediment	Iron	7810	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Lead	9.72	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6010C-METDIG	Sediment	Magnesium	2050	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Manganese	83.1	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Nickel	6.18	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6010C-METDIG	Sediment	Potassium	641	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Selenium	0.2	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Silver	0.029	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6010C-METDIG	Sediment	Sodium	66	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Thallium	0.055	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Vanadium	13.7	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF012	REF012-SE-1-100419	2019-10-04	EPA6020A-METDIG	Sediment	Zinc	44.7	TRUE	mg/kg	88	7.204	94.79056062	451479	5453440	LCR above Trail	2.5427	-0.4467	0.6519	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Aluminum	3510	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Aluminum	3510	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Antimony	0.054	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Antimony	0.054	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Arsenic	0.89	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Arsenic	0.89	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Barium	41	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Barium	41	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Beryllium	0.146	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Beryllium	0.146	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cadmium	0.133	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Calcium	2060	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Calcium	2060	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Chromium	11.6	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Chromium	11.6	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cobalt	2.85	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Cobalt	2.85	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Copper	3.89	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Copper	3.89	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Iron	6530	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Iron	6530	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Lead	8.4	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Lead	8.4	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Magnesium	2230	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Magnesium	2230	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Manganese	74.6	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Manganese	74.6	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA7471B	Sediment	Mercury	0.002	FALSE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Nickel	11.7	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Nickel	11.7	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Potassium	719	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Potassium	719	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Selenium	0.09	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Selenium	0.09	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Silver	0.019	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Silver	0.019	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Sodium	103	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6010C-METDIG	Sediment	Sodium	103	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Thallium	0.064	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Thallium	0.064	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Vanadium	11.8	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Vanadium	11.8	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Zinc	28.6	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF013	REF013-SE-1-092419	2019-09-24	EPA6020A-METDIG	Sediment	Zinc	28.6	TRUE	mg/kg	93.5	5.93	378.8552198	435360	5466487	LCR above Trail	3.1114	-0.1579	0.6462	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	5330	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	5330	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	5330	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	5330	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	0.136	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	0.136	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	0.136	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	0.136	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	1.23	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	1.23	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	1.23	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	1.23	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	54.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	54.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	54.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	54.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.202	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.202	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.202	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.202	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	0.238	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	0.238	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	0.238	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	0.238	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	2370	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	2370	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	2370	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	2370	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	14.3	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	14.3	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	14.3	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	14.3	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	3.45	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	3.45	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	3.45	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	3.45	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	6.17	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	6.17	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	6.17	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	6.17	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	8500	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	8500	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	8500	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	8500	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	12.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	12.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	12.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	12.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	2580	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	2580	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	2580	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	2580	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	103	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	103	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	103	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	103	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.009	FALSE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.009	FALSE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.009	FALSE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.009	FALSE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	13.4	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	13.4	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	13.4	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	13.4	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	954	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	954	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	954	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	954	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	0.2	FALSE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	0.0345	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	0.0345	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	0.0345	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	0.0345	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	104	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	104	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	104	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	104	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.084	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.084	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.084	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.084	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	13.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	13.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	13.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	13.5	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	37	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	37	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	37	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF014	REF014-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	37	TRUE	mg/kg	82	16	405.8294697	435318	5466529	LCR above Trail	2.4656	-0.7349	0.9128	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	11600	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Aluminum	11600	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	0.5	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Antimony	0.5	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	4.7	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Arsenic	4.7	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	142	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Barium	142	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.517	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Beryllium	0.517	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	1.1	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cadmium	1.1	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	4310	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Calcium	4310	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	40.4	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Chromium	40.4	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	10.3	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Cobalt	10.3	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	21.5	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Copper	21.5	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	18500	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Iron	18500	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	59.1	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Lead	59.1	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	6770	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Magnesium	6770	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	231	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Manganese	231	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.03	FALSE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA7471B	Sediment	Mercury	0.03	FALSE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Nickel	41.1	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	2930	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Potassium	2930	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	0.4	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Selenium	0.4	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	0.112	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Silver	0.112	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	215	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6010C-METDIG	Sediment	Sodium	215	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.219	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Thallium	0.219	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	29.1	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Vanadium	29.1	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	90.8	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF015	REF015-SE-1-092619	2019-09-26	EPA6020A-METDIG	Sediment	Zinc	90.8	TRUE	mg/kg	63.5	36.2	369.6112598	435187	5466559	LCR above Trail	1.9333	-1.4006	1.1765	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	9100	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	9100	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	0.04	FALSE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	0.04	FALSE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	9.5	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	9.5	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	98.6	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	98.6	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.525	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.525	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.229	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.229	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	4480	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	4480	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	20.4	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	20.4	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	13.1	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	13.1	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	16.3	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	16.3	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	20200	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	20200	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	10	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	10	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	4300	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	4300	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	226	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	226	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.013	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.013	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	24.5	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	24.5	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	1830	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	1830	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	0.4	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	0.4	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	0.066	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	0.066	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	215	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	215	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.183	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.183	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	30.6	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	30.6	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	47.2	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF016	REF016-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	47.2	TRUE	mg/kg	73.4	21.2	1408.15156	418674	5492199	LCR above Trail	3.6334	0.1449	0.1922	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	9310	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	9310	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	0.05	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	0.05	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	4.6	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	4.6	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	110	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	110	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.487	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.487	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.219	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.219	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	4440	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	4440	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	19.4	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	19.4	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	10	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	10	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	19.2	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	19.2	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	18500	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	18500	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	11.6	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	11.6	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	4830	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	4830	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	205	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	205	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.014	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.014	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	20.3	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	20.3	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	2080	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	2080	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	0.4	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	0.4	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	0.081	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	0.081	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	312	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	312	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.16	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.16	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	28.1	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	28.1	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	47	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF017	REF017-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	47	TRUE	mg/kg	48.7	46.6	1399.690107	418652	5492299	LCR above Trail	3.2202	0.1985	0.4253	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	9360	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Aluminum	9360	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	0.28	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Antimony	0.28	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	3.2	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Arsenic	3.2	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	109	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Barium	109	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.678	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Beryllium	0.678	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.631	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cadmium	0.631	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	6650	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Calcium	6650	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	19.2	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Chromium	19.2	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3

Table C2-1
Full Data Set for Sediment BG
Upper Columbia River
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Data Set	Location ID	Sample ID	Date	Analytic Method	Data Type	Analyte	Concentration	Detect	Unit	Percent Sand	Percent Fines	Thalweg Distance (m)	x coordinate	y coordinate	Location	PC1	PC2	PC3	Cluster Assignment
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	7.76	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Cobalt	7.76	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	19.9	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Copper	19.9	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	18600	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Iron	18600	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	26.7	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Lead	26.7	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	5100	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Magnesium	5100	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	216	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Manganese	216	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.03	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA7471B	Sediment	Mercury	0.03	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	20	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Nickel	20	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	1880	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Potassium	1880	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	0.5	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Selenium	0.5	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	0.1	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Silver	0.1	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	249	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6010C-METDIG	Sediment	Sodium	249	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.197	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Thallium	0.197	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	28.4	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Vanadium	28.4	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	58.8	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3
2019 Phase 3 Sediment Study	REF018	REF018-SE-1-092519	2019-09-25	EPA6020A-METDIG	Sediment	Zinc	58.8	TRUE	mg/kg	42.7	56.7	1329.070734	418572	5492364	LCR above Trail	1.9193	-0.8546	0.6932	3

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
05154439	Aluminum	mg/kg	4460	1
05154439	Antimony	mg/kg	0.45	0
05154439	Arsenic	mg/kg	1.65	1
05154439	Barium	mg/kg	39.5	1
05154439	Beryllium	mg/kg	0.31	1
05154439	Cadmium	mg/kg	0.155	1
05154439	Calcium	mg/kg	8615	1
05154439	Chromium	mg/kg	9.65	1
05154439	Cobalt	mg/kg	3.35	1
05154439	Copper	mg/kg	9.45	1
05154439	Iron	mg/kg	9430	1
05154439	Lead	mg/kg	6.8	1
05154439	Magnesium	mg/kg	2820	1
05154439	Manganese	mg/kg	138.5	1
05154439	Mercury	mg/kg	0.004	1
05154439	Nickel	mg/kg	7.55	1
05154439	Potassium	mg/kg	532.5	1
05154439	Silver	mg/kg	0.9	0
05154439	Sodium	mg/kg	98.1	0
05154439	Vanadium	mg/kg	19.35	1
05154439	Zinc	mg/kg	36.75	1
05154449	Aluminum	mg/kg	6165	1
05154449	Antimony	mg/kg	0.65	1
05154449	Arsenic	mg/kg	2.4	1
05154449	Barium	mg/kg	64.9	1
05154449	Beryllium	mg/kg	0.535	1
05154449	Cadmium	mg/kg	0.1195	1
05154449	Calcium	mg/kg	4850	1
05154449	Chromium	mg/kg	12.5	1
05154449	Cobalt	mg/kg	5	1
05154449	Copper	mg/kg	11.6	1
05154449	Iron	mg/kg	10950	1
05154449	Lead	mg/kg	4.85	1
05154449	Magnesium	mg/kg	3695	1
05154449	Manganese	mg/kg	239.5	1
05154449	Mercury	mg/kg	0.11	0
05154449	Nickel	mg/kg	11.3	1
05154449	Potassium	mg/kg	987.5	1
05154449	Silver	mg/kg	0.88	0
05154449	Sodium	mg/kg	158.5	1
05154449	Vanadium	mg/kg	20	1
05154449	Zinc	mg/kg	33.95	1
05154479	Aluminum	mg/kg	8370	1
05154479	Antimony	mg/kg	1.45	1
05154479	Arsenic	mg/kg	3.25	1
05154479	Barium	mg/kg	75.7	1
05154479	Beryllium	mg/kg	0.585	1
05154479	Cadmium	mg/kg	0.175	1
05154479	Calcium	mg/kg	2860	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
05154479	Chromium	mg/kg	13.95	1
05154479	Cobalt	mg/kg	6.1	1
05154479	Copper	mg/kg	12.2	1
05154479	Iron	mg/kg	14150	1
05154479	Lead	mg/kg	6.5	1
05154479	Magnesium	mg/kg	3575	1
05154479	Manganese	mg/kg	247	1
05154479	Mercury	mg/kg	0.011	1
05154479	Nickel	mg/kg	12.45	1
05154479	Potassium	mg/kg	1145	1
05154479	Silver	mg/kg	1.1	0
05154479	Sodium	mg/kg	111.35	1
05154479	Vanadium	mg/kg	23.85	1
05154479	Zinc	mg/kg	46.15	1
05164426	Aluminum	mg/kg	6235	1
05164426	Antimony	mg/kg	0.66	0
05164426	Arsenic	mg/kg	6.45	1
05164426	Barium	mg/kg	38.4	1
05164426	Beryllium	mg/kg	0.465	1
05164426	Cadmium	mg/kg	0.47	0
05164426	Calcium	mg/kg	2540	1
05164426	Chromium	mg/kg	18.75	1
05164426	Cobalt	mg/kg	6.15	1
05164426	Copper	mg/kg	11.75	1
05164426	Iron	mg/kg	15900	1
05164426	Lead	mg/kg	6.7	1
05164426	Magnesium	mg/kg	3885	1
05164426	Manganese	mg/kg	196.5	1
05164426	Mercury	mg/kg	0.096	0
05164426	Nickel	mg/kg	17	1
05164426	Potassium	mg/kg	686	1
05164426	Selenium	mg/kg	3.3	0
05164426	Silver	mg/kg	0.93	0
05164426	Sodium	mg/kg	70.3	1
05164426	Vanadium	mg/kg	21.85	1
05164426	Zinc	mg/kg	36.9	1
05164451	Aluminum	mg/kg	9870	1
05164451	Arsenic	mg/kg	2.4	1
05164451	Barium	mg/kg	83.5	1
05164451	Beryllium	mg/kg	0.78	1
05164451	Cadmium	mg/kg	0.26	1
05164451	Calcium	mg/kg	8360	1
05164451	Chromium	mg/kg	23.8	1
05164451	Cobalt	mg/kg	9.3	1
05164451	Copper	mg/kg	17.9	1
05164451	Iron	mg/kg	21700	1
05164451	Lead	mg/kg	11.7	1
05164451	Magnesium	mg/kg	5730	1
05164451	Manganese	mg/kg	343	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
05164451	Mercury	mg/kg	0.022	1
05164451	Nickel	mg/kg	25.2	1
05164451	Potassium	mg/kg	1300	1
05164451	Selenium	mg/kg	3.6	1
05164451	Sodium	mg/kg	167	1
05164451	Vanadium	mg/kg	27	1
05164451	Zinc	mg/kg	76.6	1
05164458	Aluminum	mg/kg	9890	1
05164458	Antimony	mg/kg	1.3	1
05164458	Arsenic	mg/kg	3.4	1
05164458	Barium	mg/kg	115	1
05164458	Beryllium	mg/kg	0.98	1
05164458	Cadmium	mg/kg	0.18	1
05164458	Calcium	mg/kg	11350	1
05164458	Chromium	mg/kg	24.4	1
05164458	Cobalt	mg/kg	9.7	1
05164458	Copper	mg/kg	21.1	1
05164458	Iron	mg/kg	21200	1
05164458	Lead	mg/kg	9.85	1
05164458	Magnesium	mg/kg	6490	1
05164458	Manganese	mg/kg	477.5	1
05164458	Mercury	mg/kg	0.012	1
05164458	Nickel	mg/kg	21.8	1
05164458	Potassium	mg/kg	1920	1
05164458	Selenium	mg/kg	4	1
05164458	Sodium	mg/kg	271	1
05164458	Vanadium	mg/kg	34.1	1
05164458	Zinc	mg/kg	60.05	1
05164477	Aluminum	mg/kg	7480	1
05164477	Arsenic	mg/kg	3.4	1
05164477	Barium	mg/kg	96.75	1
05164477	Beryllium	mg/kg	0.555	1
05164477	Cadmium	mg/kg	0.415	1
05164477	Calcium	mg/kg	31400	1
05164477	Chromium	mg/kg	22.2	1
05164477	Cobalt	mg/kg	6.75	1
05164477	Copper	mg/kg	15.05	1
05164477	Iron	mg/kg	15100	1
05164477	Lead	mg/kg	12.45	1
05164477	Magnesium	mg/kg	5145	1
05164477	Manganese	mg/kg	483	1
05164477	Mercury	mg/kg	0.035	1
05164477	Nickel	mg/kg	14.45	1
05164477	Potassium	mg/kg	880	1
05164477	Selenium	mg/kg	4.7	1
05164477	Sodium	mg/kg	176	0
05164477	Vanadium	mg/kg	29.05	1
05164477	Zinc	mg/kg	54.75	1
05164484	Aluminum	mg/kg	13500	1

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Sample ID	Analyte	Unit	Value	Detect
05164484	Arsenic	mg/kg	5.1	1
05164484	Barium	mg/kg	148	1
05164484	Beryllium	mg/kg	1.2	1
05164484	Cadmium	mg/kg	0.405	1
05164484	Calcium	mg/kg	5085	1
05164484	Chromium	mg/kg	30.55	1
05164484	Cobalt	mg/kg	12.3	1
05164484	Copper	mg/kg	23.1	1
05164484	Iron	mg/kg	23500	1
05164484	Lead	mg/kg	19.1	1
05164484	Magnesium	mg/kg	7090	1
05164484	Manganese	mg/kg	568	1
05164484	Mercury	mg/kg	0.018	1
05164484	Nickel	mg/kg	27.35	1
05164484	Potassium	mg/kg	2565	1
05164484	Selenium	mg/kg	3.4	0
05164484	Sodium	mg/kg	296.5	1
05164484	Vanadium	mg/kg	38.5	1
05164484	Zinc	mg/kg	88.75	1
05174414	Aluminum	mg/kg	11350	1
05174414	Arsenic	mg/kg	8.95	1
05174414	Barium	mg/kg	120	1
05174414	Beryllium	mg/kg	1	1
05174414	Cadmium	mg/kg	0.325	1
05174414	Calcium	mg/kg	4120	1
05174414	Chromium	mg/kg	21.7	1
05174414	Cobalt	mg/kg	13.95	1
05174414	Copper	mg/kg	17.6	1
05174414	Iron	mg/kg	20950	1
05174414	Lead	mg/kg	18.35	1
05174414	Magnesium	mg/kg	5320	1
05174414	Manganese	mg/kg	498.5	1
05174414	Mercury	mg/kg	0.02	1
05174414	Nickel	mg/kg	22.7	1
05174414	Potassium	mg/kg	2240	1
05174414	Selenium	mg/kg	3.1	0
05174414	Sodium	mg/kg	168	1
05174414	Vanadium	mg/kg	29.95	1
05174414	Zinc	mg/kg	90.15	1
05174462	Aluminum	mg/kg	8020	1
05174462	Arsenic	mg/kg	2.45	1
05174462	Barium	mg/kg	79.9	1
05174462	Beryllium	mg/kg	0.765	1
05174462	Cadmium	mg/kg	0.105	1
05174462	Calcium	mg/kg	2275	1
05174462	Chromium	mg/kg	12	1
05174462	Cobalt	mg/kg	5.4	1
05174462	Copper	mg/kg	9.2	1
05174462	Iron	mg/kg	14050	1

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Sample ID	Analyte	Unit	Value	Detect
05174462	Lead	mg/kg	7.6	1
05174462	Magnesium	mg/kg	3505	1
05174462	Manganese	mg/kg	201	1
05174462	Mercury	mg/kg	0.014	0
05174462	Nickel	mg/kg	9.3	1
05174462	Potassium	mg/kg	1400	1
05174462	Selenium	mg/kg	1.265	1
05174462	Silver	mg/kg	1.1	0
05174462	Sodium	mg/kg	108	1
05174462	Vanadium	mg/kg	20.8	1
05174462	Zinc	mg/kg	45.2	1
05184414	Aluminum	mg/kg	15700	1
05184414	Arsenic	mg/kg	4.15	1
05184414	Barium	mg/kg	163.5	1
05184414	Beryllium	mg/kg	1.2	1
05184414	Cadmium	mg/kg	0.395	1
05184414	Calcium	mg/kg	3655	1
05184414	Chromium	mg/kg	15.1	1
05184414	Cobalt	mg/kg	8.1	1
05184414	Copper	mg/kg	19.45	1
05184414	Iron	mg/kg	17050	1
05184414	Lead	mg/kg	17.65	1
05184414	Magnesium	mg/kg	4790	1
05184414	Manganese	mg/kg	440.5	1
05184414	Mercury	mg/kg	0.0405	1
05184414	Nickel	mg/kg	13.05	1
05184414	Potassium	mg/kg	3365	1
05184414	Selenium	mg/kg	1.95	1
05184414	Sodium	mg/kg	524.5	1
05184414	Vanadium	mg/kg	26.6	1
05184414	Zinc	mg/kg	70.65	1
2012-dep-ref-1	Aluminum	mg/kg	4000	1
2012-dep-ref-1	Antimony	mg/kg	0.05	0
2012-dep-ref-1	Arsenic	mg/kg	0.8	1
2012-dep-ref-1	Barium	mg/kg	38	1
2012-dep-ref-1	Beryllium	mg/kg	0.2	1
2012-dep-ref-1	Cadmium	mg/kg	0.23	1
2012-dep-ref-1	Calcium	mg/kg	2300	1
2012-dep-ref-1	Chromium	mg/kg	18	1
2012-dep-ref-1	Cobalt	mg/kg	3	1
2012-dep-ref-1	Copper	mg/kg	5.8	1
2012-dep-ref-1	Iron	mg/kg	13000	1
2012-dep-ref-1	Lead	mg/kg	7.8	1
2012-dep-ref-1	Magnesium	mg/kg	2600	1
2012-dep-ref-1	Manganese	mg/kg	120	1
2012-dep-ref-1	Mercury	mg/kg	0.001	1
2012-dep-ref-1	Nickel	mg/kg	9.1	1
2012-dep-ref-1	Potassium	mg/kg	790	1
2012-dep-ref-1	Selenium	mg/kg	0.01	1

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Sample ID	Analyte	Unit	Value	Detect
2012-dep-ref-1	Silver	mg/kg	0.1	0
2012-dep-ref-1	Sodium	mg/kg	83	1
2012-dep-ref-1	Thallium	mg/kg	0.05	0
2012-dep-ref-1	Vanadium	mg/kg	31	1
2012-dep-ref-1	Zinc	mg/kg	71	1
2012-dep-ref-2	Aluminum	mg/kg	4100	1
2012-dep-ref-2	Antimony	mg/kg	0.2	1
2012-dep-ref-2	Arsenic	mg/kg	1.1	1
2012-dep-ref-2	Barium	mg/kg	45	1
2012-dep-ref-2	Beryllium	mg/kg	0.2	1
2012-dep-ref-2	Cadmium	mg/kg	0.3	1
2012-dep-ref-2	Calcium	mg/kg	2400	1
2012-dep-ref-2	Chromium	mg/kg	15	1
2012-dep-ref-2	Cobalt	mg/kg	3	1
2012-dep-ref-2	Copper	mg/kg	6.3	1
2012-dep-ref-2	Iron	mg/kg	11000	1
2012-dep-ref-2	Lead	mg/kg	9.9	1
2012-dep-ref-2	Magnesium	mg/kg	2700	1
2012-dep-ref-2	Manganese	mg/kg	130	1
2012-dep-ref-2	Mercury	mg/kg	0.001	1
2012-dep-ref-2	Nickel	mg/kg	9.7	1
2012-dep-ref-2	Potassium	mg/kg	810	1
2012-dep-ref-2	Selenium	mg/kg	0.01	1
2012-dep-ref-2	Silver	mg/kg	0.1	0
2012-dep-ref-2	Sodium	mg/kg	93	1
2012-dep-ref-2	Thallium	mg/kg	0.05	0
2012-dep-ref-2	Vanadium	mg/kg	24	1
2012-dep-ref-2	Zinc	mg/kg	70	1
2012-dep-ref-3	Aluminum	mg/kg	3000	1
2012-dep-ref-3	Antimony	mg/kg	0.05	0
2012-dep-ref-3	Arsenic	mg/kg	0.6	1
2012-dep-ref-3	Barium	mg/kg	23	1
2012-dep-ref-3	Beryllium	mg/kg	0.1	1
2012-dep-ref-3	Cadmium	mg/kg	0.09	1
2012-dep-ref-3	Calcium	mg/kg	1700	1
2012-dep-ref-3	Chromium	mg/kg	15	1
2012-dep-ref-3	Cobalt	mg/kg	2.2	1
2012-dep-ref-3	Copper	mg/kg	4	1
2012-dep-ref-3	Iron	mg/kg	11000	1
2012-dep-ref-3	Lead	mg/kg	4.9	1
2012-dep-ref-3	Magnesium	mg/kg	2100	1
2012-dep-ref-3	Manganese	mg/kg	150	1
2012-dep-ref-3	Mercury	mg/kg	0.001	1
2012-dep-ref-3	Nickel	mg/kg	6.1	1
2012-dep-ref-3	Potassium	mg/kg	420	1
2012-dep-ref-3	Selenium	mg/kg	0.01	1
2012-dep-ref-3	Silver	mg/kg	0.1	0
2012-dep-ref-3	Sodium	mg/kg	97	1
2012-dep-ref-3	Thallium	mg/kg	0.05	0

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Sample ID	Analyte	Unit	Value	Detect
2012-dep-ref-3	Vanadium	mg/kg	27	1
2012-dep-ref-3	Zinc	mg/kg	38	1
2015-dep-ref-1	Aluminum	mg/kg	3860	1
2015-dep-ref-1	Antimony	mg/kg	0.2	1
2015-dep-ref-1	Arsenic	mg/kg	0.9	1
2015-dep-ref-1	Barium	mg/kg	39	1
2015-dep-ref-1	Beryllium	mg/kg	0.1	1
2015-dep-ref-1	Cadmium	mg/kg	0.19	1
2015-dep-ref-1	Calcium	mg/kg	1930	1
2015-dep-ref-1	Chromium	mg/kg	11.9	1
2015-dep-ref-1	Cobalt	mg/kg	3.5	1
2015-dep-ref-1	Copper	mg/kg	5.4	1
2015-dep-ref-1	Iron	mg/kg	10200	1
2015-dep-ref-1	Lead	mg/kg	6.8	1
2015-dep-ref-1	Magnesium	mg/kg	2440	1
2015-dep-ref-1	Manganese	mg/kg	109	1
2015-dep-ref-1	Mercury	mg/kg	0.05	1
2015-dep-ref-1	Nickel	mg/kg	7.9	1
2015-dep-ref-1	Potassium	mg/kg	728	1
2015-dep-ref-1	Selenium	mg/kg	0.25	0
2015-dep-ref-1	Silver	mg/kg	0.1	0
2015-dep-ref-1	Sodium	mg/kg	71	1
2015-dep-ref-1	Thallium	mg/kg	0.05	0
2015-dep-ref-1	Vanadium	mg/kg	18.5	1
2015-dep-ref-1	Zinc	mg/kg	59	1
2015-dep-ref-2	Aluminum	mg/kg	3450	1
2015-dep-ref-2	Antimony	mg/kg	0.1	1
2015-dep-ref-2	Arsenic	mg/kg	1	1
2015-dep-ref-2	Barium	mg/kg	36	1
2015-dep-ref-2	Beryllium	mg/kg	0.1	1
2015-dep-ref-2	Cadmium	mg/kg	0.17	1
2015-dep-ref-2	Calcium	mg/kg	1990	1
2015-dep-ref-2	Chromium	mg/kg	10	1
2015-dep-ref-2	Cobalt	mg/kg	2.6	1
2015-dep-ref-2	Copper	mg/kg	5.1	1
2015-dep-ref-2	Iron	mg/kg	8710	1
2015-dep-ref-2	Lead	mg/kg	7.3	1
2015-dep-ref-2	Magnesium	mg/kg	2220	1
2015-dep-ref-2	Manganese	mg/kg	106	1
2015-dep-ref-2	Mercury	mg/kg	0.025	0
2015-dep-ref-2	Nickel	mg/kg	7.3	1
2015-dep-ref-2	Potassium	mg/kg	559	1
2015-dep-ref-2	Selenium	mg/kg	0.25	0
2015-dep-ref-2	Silver	mg/kg	0.1	0
2015-dep-ref-2	Sodium	mg/kg	82	1
2015-dep-ref-2	Thallium	mg/kg	0.05	0
2015-dep-ref-2	Vanadium	mg/kg	14.9	1
2015-dep-ref-2	Zinc	mg/kg	48	1
2015-dep-ref-3	Aluminum	mg/kg	2880	1

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Sample ID	Analyte	Unit	Value	Detect
2015-dep-ref-3	Antimony	mg/kg	0.2	1
2015-dep-ref-3	Arsenic	mg/kg	0.8	1
2015-dep-ref-3	Barium	mg/kg	27	1
2015-dep-ref-3	Beryllium	mg/kg	0.1	1
2015-dep-ref-3	Cadmium	mg/kg	0.11	1
2015-dep-ref-3	Calcium	mg/kg	1730	1
2015-dep-ref-3	Chromium	mg/kg	15.6	1
2015-dep-ref-3	Cobalt	mg/kg	2.5	1
2015-dep-ref-3	Copper	mg/kg	5.1	1
2015-dep-ref-3	Iron	mg/kg	12000	1
2015-dep-ref-3	Lead	mg/kg	7	1
2015-dep-ref-3	Magnesium	mg/kg	1900	1
2015-dep-ref-3	Manganese	mg/kg	108	1
2015-dep-ref-3	Mercury	mg/kg	0.025	0
2015-dep-ref-3	Nickel	mg/kg	6.4	1
2015-dep-ref-3	Potassium	mg/kg	421	1
2015-dep-ref-3	Selenium	mg/kg	0.25	0
2015-dep-ref-3	Silver	mg/kg	0.1	0
2015-dep-ref-3	Sodium	mg/kg	66	1
2015-dep-ref-3	Thallium	mg/kg	0.05	0
2015-dep-ref-3	Vanadium	mg/kg	26.1	1
2015-dep-ref-3	Zinc	mg/kg	31	1
2018-dep-ref-1	Aluminum	mg/kg	3820	1
2018-dep-ref-1	Antimony	mg/kg	0.05	0
2018-dep-ref-1	Arsenic	mg/kg	1.38	1
2018-dep-ref-1	Barium	mg/kg	37.1	1
2018-dep-ref-1	Beryllium	mg/kg	0.19	1
2018-dep-ref-1	Cadmium	mg/kg	0.208	1
2018-dep-ref-1	Calcium	mg/kg	1970	1
2018-dep-ref-1	Chromium	mg/kg	14.4	1
2018-dep-ref-1	Cobalt	mg/kg	2.93	1
2018-dep-ref-1	Copper	mg/kg	5.4	1
2018-dep-ref-1	Iron	mg/kg	10000	1
2018-dep-ref-1	Lead	mg/kg	6.26	1
2018-dep-ref-1	Magnesium	mg/kg	2590	1
2018-dep-ref-1	Manganese	mg/kg	114	1
2018-dep-ref-1	Mercury	mg/kg	0.02	0
2018-dep-ref-1	Nickel	mg/kg	9.01	1
2018-dep-ref-1	Potassium	mg/kg	772	1
2018-dep-ref-1	Selenium	mg/kg	0.1	0
2018-dep-ref-1	Silver	mg/kg	0.05	0
2018-dep-ref-1	Sodium	mg/kg	89	1
2018-dep-ref-1	Thallium	mg/kg	0.05	0
2018-dep-ref-1	Vanadium	mg/kg	22.2	1
2018-dep-ref-1	Zinc	mg/kg	60.8	1
2018-dep-ref-2	Aluminum	mg/kg	4100	1
2018-dep-ref-2	Antimony	mg/kg	0.05	0
2018-dep-ref-2	Arsenic	mg/kg	1.07	1
2018-dep-ref-2	Barium	mg/kg	45.5	1

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Sample ID	Analyte	Unit	Value	Detect
2018-dep-ref-2	Beryllium	mg/kg	0.19	1
2018-dep-ref-2	Cadmium	mg/kg	0.248	1
2018-dep-ref-2	Calcium	mg/kg	1750	1
2018-dep-ref-2	Chromium	mg/kg	10.9	1
2018-dep-ref-2	Cobalt	mg/kg	2.91	1
2018-dep-ref-2	Copper	mg/kg	5.89	1
2018-dep-ref-2	Iron	mg/kg	8870	1
2018-dep-ref-2	Lead	mg/kg	7.19	1
2018-dep-ref-2	Magnesium	mg/kg	2840	1
2018-dep-ref-2	Manganese	mg/kg	115	1
2018-dep-ref-2	Mercury	mg/kg	0.02	0
2018-dep-ref-2	Nickel	mg/kg	9.65	1
2018-dep-ref-2	Potassium	mg/kg	868	1
2018-dep-ref-2	Selenium	mg/kg	0.1	0
2018-dep-ref-2	Silver	mg/kg	0.05	0
2018-dep-ref-2	Sodium	mg/kg	75	1
2018-dep-ref-2	Thallium	mg/kg	0.05	0
2018-dep-ref-2	Vanadium	mg/kg	17.8	1
2018-dep-ref-2	Zinc	mg/kg	64.9	1
2018-dep-ref-3	Aluminum	mg/kg	3910	1
2018-dep-ref-3	Antimony	mg/kg	0.15	1
2018-dep-ref-3	Arsenic	mg/kg	1.27	1
2018-dep-ref-3	Barium	mg/kg	38.7	1
2018-dep-ref-3	Beryllium	mg/kg	0.19	1
2018-dep-ref-3	Cadmium	mg/kg	0.165	1
2018-dep-ref-3	Calcium	mg/kg	1860	1
2018-dep-ref-3	Chromium	mg/kg	13.6	1
2018-dep-ref-3	Cobalt	mg/kg	2.99	1
2018-dep-ref-3	Copper	mg/kg	5.38	1
2018-dep-ref-3	Iron	mg/kg	10000	1
2018-dep-ref-3	Lead	mg/kg	5.54	1
2018-dep-ref-3	Magnesium	mg/kg	2570	1
2018-dep-ref-3	Manganese	mg/kg	109	1
2018-dep-ref-3	Mercury	mg/kg	0.02	0
2018-dep-ref-3	Nickel	mg/kg	8.69	1
2018-dep-ref-3	Potassium	mg/kg	785	1
2018-dep-ref-3	Selenium	mg/kg	0.1	0
2018-dep-ref-3	Silver	mg/kg	0.05	0
2018-dep-ref-3	Sodium	mg/kg	86	1
2018-dep-ref-3	Thallium	mg/kg	0.05	0
2018-dep-ref-3	Vanadium	mg/kg	21.4	1
2018-dep-ref-3	Zinc	mg/kg	56.2	1
BOSS-012-2mm	Aluminum	mg/kg	7245	1
BOSS-012-2mm	Antimony	mg/kg	0.6255	1
BOSS-012-2mm	Arsenic	mg/kg	9.12	1
BOSS-012-2mm	Barium	mg/kg	95.15	1
BOSS-012-2mm	Beryllium	mg/kg	0.275	1
BOSS-012-2mm	Cadmium	mg/kg	0.572	1
BOSS-012-2mm	Calcium	mg/kg	16200	1

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Sample ID	Analyte	Unit	Value	Detect
BOSS-012-2mm	Chromium	mg/kg	25.05	1
BOSS-012-2mm	Cobalt	mg/kg	8.47	1
BOSS-012-2mm	Copper	mg/kg	23.45	1
BOSS-012-2mm	Iron	mg/kg	20000	1
BOSS-012-2mm	Lead	mg/kg	34.95	1
BOSS-012-2mm	Magnesium	mg/kg	7335	1
BOSS-012-2mm	Manganese	mg/kg	274	1
BOSS-012-2mm	Mercury	mg/kg	0.031	1
BOSS-012-2mm	Nickel	mg/kg	25.75	1
BOSS-012-2mm	Potassium	mg/kg	800	1
BOSS-012-2mm	Selenium	mg/kg	0.325	1
BOSS-012-2mm	Silver	mg/kg	0.1825	1
BOSS-012-2mm	Sodium	mg/kg	128.5	1
BOSS-012-2mm	Thallium	mg/kg	0.096	1
BOSS-012-2mm	Vanadium	mg/kg	32.2	1
BOSS-012-2mm	Zinc	mg/kg	143.5	1
BOSS-019-2mm	Aluminum	mg/kg	7245	1
BOSS-019-2mm	Antimony	mg/kg	0.386	1
BOSS-019-2mm	Arsenic	mg/kg	7.315	1
BOSS-019-2mm	Barium	mg/kg	119.5	1
BOSS-019-2mm	Beryllium	mg/kg	0.3225	1
BOSS-019-2mm	Cadmium	mg/kg	0.4395	1
BOSS-019-2mm	Calcium	mg/kg	5265	1
BOSS-019-2mm	Chromium	mg/kg	18.85	1
BOSS-019-2mm	Cobalt	mg/kg	6.23	1
BOSS-019-2mm	Copper	mg/kg	18.35	1
BOSS-019-2mm	Iron	mg/kg	18250	1
BOSS-019-2mm	Lead	mg/kg	14.9	1
BOSS-019-2mm	Magnesium	mg/kg	4635	1
BOSS-019-2mm	Manganese	mg/kg	269.5	1
BOSS-019-2mm	Mercury	mg/kg	0.0325	1
BOSS-019-2mm	Nickel	mg/kg	15.8	1
BOSS-019-2mm	Potassium	mg/kg	927.5	1
BOSS-019-2mm	Selenium	mg/kg	0.21	1
BOSS-019-2mm	Silver	mg/kg	0.135	1
BOSS-019-2mm	Sodium	mg/kg	96	1
BOSS-019-2mm	Thallium	mg/kg	0.1485	1
BOSS-019-2mm	Vanadium	mg/kg	34.65	1
BOSS-019-2mm	Zinc	mg/kg	79.35	1
CR-AAA1	Aluminum	mg/kg	6020	1
CR-AAA1	Antimony	mg/kg	0.055	0
CR-AAA1	Arsenic	mg/kg	1.56	1
CR-AAA1	Barium	mg/kg	55.2	1
CR-AAA1	Beryllium	mg/kg	0.18	1
CR-AAA1	Cadmium	mg/kg	0.136	1
CR-AAA1	Calcium	mg/kg	4370	1
CR-AAA1	Chromium	mg/kg	7.91	1
CR-AAA1	Cobalt	mg/kg	3.8	1
CR-AAA1	Copper	mg/kg	9.4	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-AAA1	Iron	mg/kg	11600	1
CR-AAA1	Lead	mg/kg	4.37	1
CR-AAA1	Magnesium	mg/kg	3750	1
CR-AAA1	Manganese	mg/kg	215	1
CR-AAA1	Mercury	mg/kg	0.004	1
CR-AAA1	Nickel	mg/kg	9.15	1
CR-AAA1	Potassium	mg/kg	747	1
CR-AAA1	Selenium	mg/kg	0.2	0
CR-AAA1	Silver	mg/kg	0.059	1
CR-AAA1	Sodium	mg/kg	280	1
CR-AAA1	Thallium	mg/kg	0.067	1
CR-AAA1	Vanadium	mg/kg	17.4	1
CR-AAA1	Zinc	mg/kg	33.7	1
CR-AAA2	Aluminum	mg/kg	5160	1
CR-AAA2	Antimony	mg/kg	0.094	0
CR-AAA2	Arsenic	mg/kg	1.62	1
CR-AAA2	Barium	mg/kg	40.2	1
CR-AAA2	Beryllium	mg/kg	0.14	1
CR-AAA2	Cadmium	mg/kg	0.186	1
CR-AAA2	Calcium	mg/kg	3290	1
CR-AAA2	Chromium	mg/kg	7.75	1
CR-AAA2	Cobalt	mg/kg	4.14	1
CR-AAA2	Copper	mg/kg	9.3	1
CR-AAA2	Iron	mg/kg	12800	1
CR-AAA2	Lead	mg/kg	6.56	1
CR-AAA2	Magnesium	mg/kg	3500	1
CR-AAA2	Manganese	mg/kg	193	1
CR-AAA2	Mercury	mg/kg	0.008	1
CR-AAA2	Nickel	mg/kg	9.22	1
CR-AAA2	Potassium	mg/kg	623	1
CR-AAA2	Selenium	mg/kg	0.2	0
CR-AAA2	Silver	mg/kg	0.055	1
CR-AAA2	Sodium	mg/kg	122	1
CR-AAA2	Thallium	mg/kg	0.065	1
CR-AAA2	Vanadium	mg/kg	15	1
CR-AAA2	Zinc	mg/kg	38.7	1
CR-AAA3	Aluminum	mg/kg	5790	1
CR-AAA3	Antimony	mg/kg	0.085	0
CR-AAA3	Arsenic	mg/kg	1.62	1
CR-AAA3	Barium	mg/kg	46.2	1
CR-AAA3	Beryllium	mg/kg	0.18	1
CR-AAA3	Cadmium	mg/kg	0.169	1
CR-AAA3	Calcium	mg/kg	2770	1
CR-AAA3	Chromium	mg/kg	8.15	1
CR-AAA3	Cobalt	mg/kg	4.31	1
CR-AAA3	Copper	mg/kg	11.8	1
CR-AAA3	Iron	mg/kg	12200	1
CR-AAA3	Lead	mg/kg	5.67	1
CR-AAA3	Magnesium	mg/kg	3700	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-AAA3	Manganese	mg/kg	199	1
CR-AAA3	Mercury	mg/kg	0.007	1
CR-AAA3	Nickel	mg/kg	10.4	1
CR-AAA3	Potassium	mg/kg	713	1
CR-AAA3	Selenium	mg/kg	0.2	0
CR-AAA3	Silver	mg/kg	0.045	1
CR-AAA3	Sodium	mg/kg	116	1
CR-AAA3	Thallium	mg/kg	0.049	1
CR-AAA3	Vanadium	mg/kg	15.2	1
CR-AAA3	Zinc	mg/kg	40.2	1
CR-AAB1	Aluminum	mg/kg	4910	1
CR-AAB1	Antimony	mg/kg	0.045	0
CR-AAB1	Arsenic	mg/kg	1.61	1
CR-AAB1	Barium	mg/kg	50.8	1
CR-AAB1	Beryllium	mg/kg	0.15	1
CR-AAB1	Cadmium	mg/kg	0.106	1
CR-AAB1	Calcium	mg/kg	2730	1
CR-AAB1	Chromium	mg/kg	7.59	1
CR-AAB1	Cobalt	mg/kg	3.61	1
CR-AAB1	Copper	mg/kg	8.9	1
CR-AAB1	Iron	mg/kg	10300	1
CR-AAB1	Lead	mg/kg	3.71	1
CR-AAB1	Magnesium	mg/kg	3120	1
CR-AAB1	Manganese	mg/kg	177	1
CR-AAB1	Mercury	mg/kg	0.002	0
CR-AAB1	Nickel	mg/kg	8.83	1
CR-AAB1	Potassium	mg/kg	705	1
CR-AAB1	Selenium	mg/kg	0.2	0
CR-AAB1	Silver	mg/kg	0.047	1
CR-AAB1	Sodium	mg/kg	107	1
CR-AAB1	Thallium	mg/kg	0.056	1
CR-AAB1	Vanadium	mg/kg	12.8	1
CR-AAB1	Zinc	mg/kg	30.9	1
CR-AAB2	Aluminum	mg/kg	4350	1
CR-AAB2	Antimony	mg/kg	0.044	0
CR-AAB2	Arsenic	mg/kg	1.65	1
CR-AAB2	Barium	mg/kg	37	1
CR-AAB2	Beryllium	mg/kg	0.14	1
CR-AAB2	Cadmium	mg/kg	0.101	1
CR-AAB2	Calcium	mg/kg	2530	1
CR-AAB2	Chromium	mg/kg	7.76	1
CR-AAB2	Cobalt	mg/kg	3.19	1
CR-AAB2	Copper	mg/kg	7.6	1
CR-AAB2	Iron	mg/kg	9570	1
CR-AAB2	Lead	mg/kg	3.31	1
CR-AAB2	Magnesium	mg/kg	2900	1
CR-AAB2	Manganese	mg/kg	171	1
CR-AAB2	Mercury	mg/kg	0.002	0
CR-AAB2	Nickel	mg/kg	8.55	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-AAB2	Potassium	mg/kg	577	1
CR-AAB2	Selenium	mg/kg	0.2	0
CR-AAB2	Silver	mg/kg	0.038	1
CR-AAB2	Sodium	mg/kg	130	1
CR-AAB2	Thallium	mg/kg	0.052	1
CR-AAB2	Vanadium	mg/kg	14.1	1
CR-AAB2	Zinc	mg/kg	25.6	1
CR-AAB3	Aluminum	mg/kg	4730	1
CR-AAB3	Antimony	mg/kg	0.037	0
CR-AAB3	Arsenic	mg/kg	1.63	1
CR-AAB3	Barium	mg/kg	48.6	1
CR-AAB3	Beryllium	mg/kg	0.15	1
CR-AAB3	Cadmium	mg/kg	0.111	1
CR-AAB3	Calcium	mg/kg	2670	1
CR-AAB3	Chromium	mg/kg	8.72	1
CR-AAB3	Cobalt	mg/kg	3.56	1
CR-AAB3	Copper	mg/kg	9.2	1
CR-AAB3	Iron	mg/kg	10400	1
CR-AAB3	Lead	mg/kg	3.98	1
CR-AAB3	Magnesium	mg/kg	3100	1
CR-AAB3	Manganese	mg/kg	158	1
CR-AAB3	Mercury	mg/kg	0.008	1
CR-AAB3	Nickel	mg/kg	9.07	1
CR-AAB3	Potassium	mg/kg	681	1
CR-AAB3	Selenium	mg/kg	0.2	0
CR-AAB3	Silver	mg/kg	0.052	1
CR-AAB3	Sodium	mg/kg	90	1
CR-AAB3	Thallium	mg/kg	0.06	1
CR-AAB3	Vanadium	mg/kg	14.4	1
CR-AAB3	Zinc	mg/kg	31.8	1
CR-AAC1	Aluminum	mg/kg	7080	1
CR-AAC1	Antimony	mg/kg	0.067	0
CR-AAC1	Arsenic	mg/kg	1.96	1
CR-AAC1	Barium	mg/kg	75.7	1
CR-AAC1	Beryllium	mg/kg	0.22	1
CR-AAC1	Cadmium	mg/kg	0.282	1
CR-AAC1	Calcium	mg/kg	3040	1
CR-AAC1	Chromium	mg/kg	12.1	1
CR-AAC1	Cobalt	mg/kg	5	1
CR-AAC1	Copper	mg/kg	12.3	1
CR-AAC1	Iron	mg/kg	14000	1
CR-AAC1	Lead	mg/kg	8.63	1
CR-AAC1	Magnesium	mg/kg	3860	1
CR-AAC1	Manganese	mg/kg	157	1
CR-AAC1	Mercury	mg/kg	0.011	1
CR-AAC1	Nickel	mg/kg	12.3	1
CR-AAC1	Potassium	mg/kg	1160	1
CR-AAC1	Selenium	mg/kg	0.2	1
CR-AAC1	Silver	mg/kg	0.068	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-AAC1	Sodium	mg/kg	127	1
CR-AAC1	Thallium	mg/kg	0.181	1
CR-AAC1	Vanadium	mg/kg	17.5	1
CR-AAC1	Zinc	mg/kg	56	1
CR-AAD1	Aluminum	mg/kg	6090	1
CR-AAD1	Antimony	mg/kg	0.111	0
CR-AAD1	Arsenic	mg/kg	1.74	1
CR-AAD1	Barium	mg/kg	69.9	1
CR-AAD1	Beryllium	mg/kg	0.18	1
CR-AAD1	Cadmium	mg/kg	0.169	1
CR-AAD1	Calcium	mg/kg	4290	1
CR-AAD1	Chromium	mg/kg	10.5	1
CR-AAD1	Cobalt	mg/kg	4.93	1
CR-AAD1	Copper	mg/kg	11.1	1
CR-AAD1	Iron	mg/kg	13900	1
CR-AAD1	Lead	mg/kg	5.48	1
CR-AAD1	Magnesium	mg/kg	3930	1
CR-AAD1	Manganese	mg/kg	201	1
CR-AAD1	Mercury	mg/kg	0.005	1
CR-AAD1	Nickel	mg/kg	12.3	1
CR-AAD1	Potassium	mg/kg	1070	1
CR-AAD1	Selenium	mg/kg	0.2	0
CR-AAD1	Silver	mg/kg	0.063	1
CR-AAD1	Sodium	mg/kg	119	1
CR-AAD1	Thallium	mg/kg	0.105	1
CR-AAD1	Vanadium	mg/kg	16	1
CR-AAD1	Zinc	mg/kg	43.7	1
CR-AAD2	Aluminum	mg/kg	5060	1
CR-AAD2	Antimony	mg/kg	0.06	0
CR-AAD2	Arsenic	mg/kg	1.22	1
CR-AAD2	Barium	mg/kg	52.7	1
CR-AAD2	Beryllium	mg/kg	0.18	1
CR-AAD2	Cadmium	mg/kg	0.104	1
CR-AAD2	Calcium	mg/kg	6330	1
CR-AAD2	Chromium	mg/kg	7.9	1
CR-AAD2	Cobalt	mg/kg	4	1
CR-AAD2	Copper	mg/kg	11.5	1
CR-AAD2	Iron	mg/kg	11100	1
CR-AAD2	Lead	mg/kg	3.6	1
CR-AAD2	Magnesium	mg/kg	3990	1
CR-AAD2	Manganese	mg/kg	238	1
CR-AAD2	Mercury	mg/kg	0.002	1
CR-AAD2	Nickel	mg/kg	9.84	1
CR-AAD2	Potassium	mg/kg	772	1
CR-AAD2	Selenium	mg/kg	0.2	0
CR-AAD2	Silver	mg/kg	0.059	1
CR-AAD2	Sodium	mg/kg	120	1
CR-AAD2	Thallium	mg/kg	0.06	1
CR-AAD2	Vanadium	mg/kg	13.7	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-AAD2	Zinc	mg/kg	32	1
CR-AAD3	Aluminum	mg/kg	5410	1
CR-AAD3	Antimony	mg/kg	0.058	0
CR-AAD3	Arsenic	mg/kg	1.41	1
CR-AAD3	Barium	mg/kg	46.3	1
CR-AAD3	Beryllium	mg/kg	0.14	1
CR-AAD3	Cadmium	mg/kg	0.102	1
CR-AAD3	Calcium	mg/kg	6130	1
CR-AAD3	Chromium	mg/kg	6.92	1
CR-AAD3	Cobalt	mg/kg	4.19	1
CR-AAD3	Copper	mg/kg	11	1
CR-AAD3	Iron	mg/kg	10500	1
CR-AAD3	Lead	mg/kg	3.98	1
CR-AAD3	Magnesium	mg/kg	4300	1
CR-AAD3	Manganese	mg/kg	280	1
CR-AAD3	Mercury	mg/kg	0.002	0
CR-AAD3	Nickel	mg/kg	12.7	1
CR-AAD3	Potassium	mg/kg	743	1
CR-AAD3	Selenium	mg/kg	0.2	0
CR-AAD3	Silver	mg/kg	0.068	1
CR-AAD3	Sodium	mg/kg	154	1
CR-AAD3	Thallium	mg/kg	0.042	1
CR-AAD3	Vanadium	mg/kg	14.4	1
CR-AAD3	Zinc	mg/kg	31.1	1
CR-AAE1	Aluminum	mg/kg	5710	1
CR-AAE1	Antimony	mg/kg	0.064	0
CR-AAE1	Arsenic	mg/kg	1.69	1
CR-AAE1	Barium	mg/kg	58	1
CR-AAE1	Beryllium	mg/kg	0.17	1
CR-AAE1	Cadmium	mg/kg	0.142	1
CR-AAE1	Calcium	mg/kg	3560	1
CR-AAE1	Chromium	mg/kg	10.6	1
CR-AAE1	Cobalt	mg/kg	4.75	1
CR-AAE1	Copper	mg/kg	11.2	1
CR-AAE1	Iron	mg/kg	12400	1
CR-AAE1	Lead	mg/kg	4.7	1
CR-AAE1	Magnesium	mg/kg	4130	1
CR-AAE1	Manganese	mg/kg	244	1
CR-AAE1	Mercury	mg/kg	0.003	1
CR-AAE1	Nickel	mg/kg	11.6	1
CR-AAE1	Potassium	mg/kg	787	1
CR-AAE1	Selenium	mg/kg	0.2	0
CR-AAE1	Silver	mg/kg	0.066	1
CR-AAE1	Sodium	mg/kg	109	1
CR-AAE1	Thallium	mg/kg	0.08	1
CR-AAE1	Vanadium	mg/kg	17.4	1
CR-AAE1	Zinc	mg/kg	36.4	1
CR-AAE2	Aluminum	mg/kg	5270	1
CR-AAE2	Antimony	mg/kg	0.024	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-AAE2	Arsenic	mg/kg	2.21	1
CR-AAE2	Barium	mg/kg	44.7	1
CR-AAE2	Beryllium	mg/kg	0.12	1
CR-AAE2	Cadmium	mg/kg	0.112	1
CR-AAE2	Calcium	mg/kg	4880	1
CR-AAE2	Chromium	mg/kg	8.08	1
CR-AAE2	Cobalt	mg/kg	5.19	1
CR-AAE2	Copper	mg/kg	9.9	1
CR-AAE2	Iron	mg/kg	10500	1
CR-AAE2	Lead	mg/kg	4.02	1
CR-AAE2	Magnesium	mg/kg	4290	1
CR-AAE2	Manganese	mg/kg	256	1
CR-AAE2	Mercury	mg/kg	0.002	0
CR-AAE2	Nickel	mg/kg	8.87	1
CR-AAE2	Potassium	mg/kg	664	1
CR-AAE2	Selenium	mg/kg	0.2	0
CR-AAE2	Silver	mg/kg	0.054	1
CR-AAE2	Sodium	mg/kg	112	1
CR-AAE2	Thallium	mg/kg	0.056	1
CR-AAE2	Vanadium	mg/kg	16.4	1
CR-AAE2	Zinc	mg/kg	28.1	1
CR-AAE3	Aluminum	mg/kg	3890	1
CR-AAE3	Antimony	mg/kg	0.009	0
CR-AAE3	Arsenic	mg/kg	1.1	1
CR-AAE3	Barium	mg/kg	39	1
CR-AAE3	Beryllium	mg/kg	0.1	1
CR-AAE3	Cadmium	mg/kg	0.099	1
CR-AAE3	Calcium	mg/kg	4340	1
CR-AAE3	Chromium	mg/kg	5.98	1
CR-AAE3	Cobalt	mg/kg	2.95	1
CR-AAE3	Copper	mg/kg	7.2	1
CR-AAE3	Iron	mg/kg	7620	1
CR-AAE3	Lead	mg/kg	3.07	1
CR-AAE3	Magnesium	mg/kg	2920	1
CR-AAE3	Manganese	mg/kg	220	1
CR-AAE3	Mercury	mg/kg	0.002	0
CR-AAE3	Nickel	mg/kg	7.04	1
CR-AAE3	Potassium	mg/kg	610	1
CR-AAE3	Selenium	mg/kg	0.2	0
CR-AAE3	Silver	mg/kg	0.036	1
CR-AAE3	Sodium	mg/kg	101	1
CR-AAE3	Thallium	mg/kg	0.045	1
CR-AAE3	Vanadium	mg/kg	12.7	1
CR-AAE3	Zinc	mg/kg	23.4	1
CR-BBA1	Aluminum	mg/kg	11800	1
CR-BBA1	Antimony	mg/kg	0.582	1
CR-BBA1	Arsenic	mg/kg	15.4	1
CR-BBA1	Barium	mg/kg	149	1
CR-BBA1	Beryllium	mg/kg	0.47	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-BBA1	Cadmium	mg/kg	0.615	1
CR-BBA1	Calcium	mg/kg	3530	1
CR-BBA1	Chromium	mg/kg	25.8	1
CR-BBA1	Cobalt	mg/kg	11.5	1
CR-BBA1	Copper	mg/kg	33.7	1
CR-BBA1	Iron	mg/kg	25700	1
CR-BBA1	Lead	mg/kg	64	1
CR-BBA1	Magnesium	mg/kg	6140	1
CR-BBA1	Manganese	mg/kg	430	1
CR-BBA1	Mercury	mg/kg	0.013	1
CR-BBA1	Nickel	mg/kg	32.1	1
CR-BBA1	Potassium	mg/kg	2520	1
CR-BBA1	Selenium	mg/kg	0.2	0
CR-BBA1	Silver	mg/kg	0.102	1
CR-BBA1	Sodium	mg/kg	196	1
CR-BBA1	Thallium	mg/kg	0.144	1
CR-BBA1	Vanadium	mg/kg	33	1
CR-BBA1	Zinc	mg/kg	107	1
CR-BBA2	Aluminum	mg/kg	15400	1
CR-BBA2	Antimony	mg/kg	0.87	1
CR-BBA2	Arsenic	mg/kg	13.6	1
CR-BBA2	Barium	mg/kg	204	1
CR-BBA2	Beryllium	mg/kg	0.66	1
CR-BBA2	Cadmium	mg/kg	0.553	1
CR-BBA2	Calcium	mg/kg	3760	1
CR-BBA2	Chromium	mg/kg	29.7	1
CR-BBA2	Cobalt	mg/kg	16.2	1
CR-BBA2	Copper	mg/kg	51.8	1
CR-BBA2	Iron	mg/kg	36200	1
CR-BBA2	Lead	mg/kg	25.8	1
CR-BBA2	Magnesium	mg/kg	7650	1
CR-BBA2	Manganese	mg/kg	757	1
CR-BBA2	Mercury	mg/kg	0.016	1
CR-BBA2	Nickel	mg/kg	46.9	1
CR-BBA2	Potassium	mg/kg	3330	1
CR-BBA2	Selenium	mg/kg	0.2	0
CR-BBA2	Silver	mg/kg	0.137	1
CR-BBA2	Sodium	mg/kg	138	1
CR-BBA2	Thallium	mg/kg	0.15	1
CR-BBA2	Vanadium	mg/kg	38.4	1
CR-BBA2	Zinc	mg/kg	125	1
CR-BBA3	Aluminum	mg/kg	19000	1
CR-BBA3	Antimony	mg/kg	0.787	1
CR-BBA3	Arsenic	mg/kg	14.3	1
CR-BBA3	Barium	mg/kg	275	1
CR-BBA3	Beryllium	mg/kg	0.75	1
CR-BBA3	Cadmium	mg/kg	0.58	1
CR-BBA3	Calcium	mg/kg	4800	1
CR-BBA3	Chromium	mg/kg	35.8	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-BBA3	Cobalt	mg/kg	18.1	1
CR-BBA3	Copper	mg/kg	64.2	1
CR-BBA3	Iron	mg/kg	37500	1
CR-BBA3	Lead	mg/kg	15.5	1
CR-BBA3	Magnesium	mg/kg	10100	1
CR-BBA3	Manganese	mg/kg	640	1
CR-BBA3	Mercury	mg/kg	0.036	1
CR-BBA3	Nickel	mg/kg	60.4	1
CR-BBA3	Potassium	mg/kg	3590	1
CR-BBA3	Selenium	mg/kg	0.2	0
CR-BBA3	Silver	mg/kg	0.247	1
CR-BBA3	Sodium	mg/kg	230	1
CR-BBA3	Thallium	mg/kg	0.148	1
CR-BBA3	Vanadium	mg/kg	42.3	1
CR-BBA3	Zinc	mg/kg	136	1
CR-BBC3	Aluminum	mg/kg	14700	1
CR-BBC3	Antimony	mg/kg	0.71	1
CR-BBC3	Arsenic	mg/kg	8.77	1
CR-BBC3	Barium	mg/kg	207	1
CR-BBC3	Beryllium	mg/kg	0.62	1
CR-BBC3	Cadmium	mg/kg	0.601	1
CR-BBC3	Calcium	mg/kg	4310	1
CR-BBC3	Chromium	mg/kg	29.9	1
CR-BBC3	Cobalt	mg/kg	14.2	1
CR-BBC3	Copper	mg/kg	46.3	1
CR-BBC3	Iron	mg/kg	31900	1
CR-BBC3	Lead	mg/kg	22.3	1
CR-BBC3	Magnesium	mg/kg	7300	1
CR-BBC3	Manganese	mg/kg	609	1
CR-BBC3	Mercury	mg/kg	0.035	1
CR-BBC3	Nickel	mg/kg	43.5	1
CR-BBC3	Potassium	mg/kg	3270	1
CR-BBC3	Selenium	mg/kg	0.2	0
CR-BBC3	Silver	mg/kg	0.151	1
CR-BBC3	Sodium	mg/kg	185	1
CR-BBC3	Thallium	mg/kg	0.137	1
CR-BBC3	Vanadium	mg/kg	40.4	1
CR-BBC3	Zinc	mg/kg	126	1
CR-BBD2	Aluminum	mg/kg	13800	1
CR-BBD2	Antimony	mg/kg	0.695	1
CR-BBD2	Arsenic	mg/kg	24.1	1
CR-BBD2	Barium	mg/kg	188	1
CR-BBD2	Beryllium	mg/kg	0.65	1
CR-BBD2	Cadmium	mg/kg	1.04	1
CR-BBD2	Calcium	mg/kg	4110	1
CR-BBD2	Chromium	mg/kg	23.9	1
CR-BBD2	Cobalt	mg/kg	14.6	1
CR-BBD2	Copper	mg/kg	42.1	1
CR-BBD2	Iron	mg/kg	31100	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
CR-BBD2	Lead	mg/kg	102	1
CR-BBD2	Magnesium	mg/kg	6200	1
CR-BBD2	Manganese	mg/kg	713	1
CR-BBD2	Mercury	mg/kg	0.015	1
CR-BBD2	Nickel	mg/kg	37.4	1
CR-BBD2	Potassium	mg/kg	3040	1
CR-BBD2	Selenium	mg/kg	0.2	0
CR-BBD2	Silver	mg/kg	0.122	1
CR-BBD2	Sodium	mg/kg	164	1
CR-BBD2	Thallium	mg/kg	0.174	1
CR-BBD2	Vanadium	mg/kg	34.7	1
CR-BBD2	Zinc	mg/kg	151	1
CR-BBD3	Aluminum	mg/kg	17200	1
CR-BBD3	Antimony	mg/kg	0.766	1
CR-BBD3	Arsenic	mg/kg	12.1	1
CR-BBD3	Barium	mg/kg	183	1
CR-BBD3	Beryllium	mg/kg	0.75	1
CR-BBD3	Cadmium	mg/kg	0.745	1
CR-BBD3	Calcium	mg/kg	3900	1
CR-BBD3	Chromium	mg/kg	28.5	1
CR-BBD3	Cobalt	mg/kg	17.5	1
CR-BBD3	Copper	mg/kg	55.2	1
CR-BBD3	Iron	mg/kg	34200	1
CR-BBD3	Lead	mg/kg	18.3	1
CR-BBD3	Magnesium	mg/kg	7860	1
CR-BBD3	Manganese	mg/kg	720	1
CR-BBD3	Mercury	mg/kg	0.019	1
CR-BBD3	Nickel	mg/kg	49.3	1
CR-BBD3	Potassium	mg/kg	3330	1
CR-BBD3	Selenium	mg/kg	0.2	0
CR-BBD3	Silver	mg/kg	0.269	1
CR-BBD3	Sodium	mg/kg	150	1
CR-BBD3	Thallium	mg/kg	0.169	1
CR-BBD3	Vanadium	mg/kg	42.6	1
CR-BBD3	Zinc	mg/kg	151	1
CR-BBE2	Aluminum	mg/kg	11800	1
CR-BBE2	Antimony	mg/kg	0.119	1
CR-BBE2	Arsenic	mg/kg	3.47	1
CR-BBE2	Barium	mg/kg	125	1
CR-BBE2	Beryllium	mg/kg	0.39	1
CR-BBE2	Cadmium	mg/kg	0.25	1
CR-BBE2	Calcium	mg/kg	3080	1
CR-BBE2	Chromium	mg/kg	13.9	1
CR-BBE2	Cobalt	mg/kg	6.48	1
CR-BBE2	Copper	mg/kg	17.9	1
CR-BBE2	Iron	mg/kg	15400	1
CR-BBE2	Lead	mg/kg	11.4	1
CR-BBE2	Magnesium	mg/kg	4170	1
CR-BBE2	Manganese	mg/kg	257	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
CR-BBE2	Mercury	mg/kg	0.009	1
CR-BBE2	Nickel	mg/kg	15.2	1
CR-BBE2	Potassium	mg/kg	2070	1
CR-BBE2	Selenium	mg/kg	0.2	0
CR-BBE2	Silver	mg/kg	0.049	1
CR-BBE2	Sodium	mg/kg	218	1
CR-BBE2	Thallium	mg/kg	0.13	1
CR-BBE2	Vanadium	mg/kg	19.7	1
CR-BBE2	Zinc	mg/kg	54.9	1
CR-BBE3	Aluminum	mg/kg	10500	1
CR-BBE3	Antimony	mg/kg	0.121	1
CR-BBE3	Arsenic	mg/kg	2.15	1
CR-BBE3	Barium	mg/kg	116	1
CR-BBE3	Beryllium	mg/kg	0.36	1
CR-BBE3	Cadmium	mg/kg	0.153	1
CR-BBE3	Calcium	mg/kg	3590	1
CR-BBE3	Chromium	mg/kg	14.1	1
CR-BBE3	Cobalt	mg/kg	6.38	1
CR-BBE3	Copper	mg/kg	18	1
CR-BBE3	Iron	mg/kg	15100	1
CR-BBE3	Lead	mg/kg	7.54	1
CR-BBE3	Magnesium	mg/kg	4330	1
CR-BBE3	Manganese	mg/kg	220	1
CR-BBE3	Mercury	mg/kg	0.005	1
CR-BBE3	Nickel	mg/kg	15.5	1
CR-BBE3	Potassium	mg/kg	1880	1
CR-BBE3	Selenium	mg/kg	0.2	0
CR-BBE3	Silver	mg/kg	0.08	1
CR-BBE3	Sodium	mg/kg	282	1
CR-BBE3	Thallium	mg/kg	0.117	1
CR-BBE3	Vanadium	mg/kg	20.5	1
CR-BBE3	Zinc	mg/kg	47	1
CR-BCA1	Aluminum	mg/kg	10500	1
CR-BCA1	Antimony	mg/kg	0.114	1
CR-BCA1	Arsenic	mg/kg	1.73	1
CR-BCA1	Barium	mg/kg	54.9	1
CR-BCA1	Beryllium	mg/kg	0.27	1
CR-BCA1	Cadmium	mg/kg	0.237	1
CR-BCA1	Calcium	mg/kg	1630	1
CR-BCA1	Chromium	mg/kg	6.36	1
CR-BCA1	Cobalt	mg/kg	2.9	1
CR-BCA1	Copper	mg/kg	16.6	1
CR-BCA1	Iron	mg/kg	9880	1
CR-BCA1	Lead	mg/kg	6.52	1
CR-BCA1	Magnesium	mg/kg	2360	1
CR-BCA1	Manganese	mg/kg	153	1
CR-BCA1	Mercury	mg/kg	0.006	1
CR-BCA1	Nickel	mg/kg	6.11	1
CR-BCA1	Potassium	mg/kg	687	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-BCA1	Selenium	mg/kg	0.03	0
CR-BCA1	Silver	mg/kg	0.049	1
CR-BCA1	Sodium	mg/kg	63	1
CR-BCA1	Thallium	mg/kg	0.072	1
CR-BCA1	Vanadium	mg/kg	12.3	1
CR-BCA1	Zinc	mg/kg	40.7	1
CR-BCA2	Aluminum	mg/kg	9260	1
CR-BCA2	Antimony	mg/kg	0.281	1
CR-BCA2	Arsenic	mg/kg	2.26	1
CR-BCA2	Barium	mg/kg	93.3	1
CR-BCA2	Beryllium	mg/kg	0.41	1
CR-BCA2	Cadmium	mg/kg	0.317	1
CR-BCA2	Calcium	mg/kg	1760	1
CR-BCA2	Chromium	mg/kg	7.79	1
CR-BCA2	Cobalt	mg/kg	4.4	1
CR-BCA2	Copper	mg/kg	11.3	1
CR-BCA2	Iron	mg/kg	13500	1
CR-BCA2	Lead	mg/kg	7.63	1
CR-BCA2	Magnesium	mg/kg	3430	1
CR-BCA2	Manganese	mg/kg	355	1
CR-BCA2	Mercury	mg/kg	0.004	1
CR-BCA2	Nickel	mg/kg	9.86	1
CR-BCA2	Potassium	mg/kg	869	1
CR-BCA2	Selenium	mg/kg	0.03	0
CR-BCA2	Silver	mg/kg	0.041	1
CR-BCA2	Sodium	mg/kg	71	1
CR-BCA2	Thallium	mg/kg	0.092	1
CR-BCA2	Vanadium	mg/kg	13.2	1
CR-BCA2	Zinc	mg/kg	54.1	1
CR-BCA3	Aluminum	mg/kg	7700	1
CR-BCA3	Antimony	mg/kg	0.169	1
CR-BCA3	Arsenic	mg/kg	2.16	1
CR-BCA3	Barium	mg/kg	57.1	1
CR-BCA3	Beryllium	mg/kg	0.35	1
CR-BCA3	Cadmium	mg/kg	0.1	1
CR-BCA3	Calcium	mg/kg	2070	1
CR-BCA3	Chromium	mg/kg	9.01	1
CR-BCA3	Cobalt	mg/kg	4.1	1
CR-BCA3	Copper	mg/kg	14	1
CR-BCA3	Iron	mg/kg	12900	1
CR-BCA3	Lead	mg/kg	4.19	1
CR-BCA3	Magnesium	mg/kg	3930	1
CR-BCA3	Manganese	mg/kg	199	1
CR-BCA3	Mercury	mg/kg	0.003	1
CR-BCA3	Nickel	mg/kg	11.9	1
CR-BCA3	Potassium	mg/kg	858	1
CR-BCA3	Selenium	mg/kg	0.03	0
CR-BCA3	Silver	mg/kg	0.04	1
CR-BCA3	Sodium	mg/kg	99	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-BCA3	Thallium	mg/kg	0.056	1
CR-BCA3	Vanadium	mg/kg	19.2	1
CR-BCA3	Zinc	mg/kg	32.6	1
CR-BCB1	Aluminum	mg/kg	7410	1
CR-BCB1	Antimony	mg/kg	0.052	1
CR-BCB1	Arsenic	mg/kg	1.17	1
CR-BCB1	Barium	mg/kg	73.6	1
CR-BCB1	Beryllium	mg/kg	0.3	1
CR-BCB1	Cadmium	mg/kg	0.193	1
CR-BCB1	Calcium	mg/kg	1670	1
CR-BCB1	Chromium	mg/kg	6.08	1
CR-BCB1	Cobalt	mg/kg	3.1	1
CR-BCB1	Copper	mg/kg	8.9	1
CR-BCB1	Iron	mg/kg	9670	1
CR-BCB1	Lead	mg/kg	6.47	1
CR-BCB1	Magnesium	mg/kg	2550	1
CR-BCB1	Manganese	mg/kg	161	1
CR-BCB1	Mercury	mg/kg	0.005	1
CR-BCB1	Nickel	mg/kg	6.61	1
CR-BCB1	Potassium	mg/kg	817	1
CR-BCB1	Selenium	mg/kg	0.03	0
CR-BCB1	Silver	mg/kg	0.03	1
CR-BCB1	Sodium	mg/kg	108	1
CR-BCB1	Thallium	mg/kg	0.095	1
CR-BCB1	Vanadium	mg/kg	12.2	1
CR-BCB1	Zinc	mg/kg	36.5	1
CR-BCB2	Aluminum	mg/kg	7420	1
CR-BCB2	Antimony	mg/kg	0.035	1
CR-BCB2	Arsenic	mg/kg	1.1	1
CR-BCB2	Barium	mg/kg	51.2	1
CR-BCB2	Beryllium	mg/kg	0.43	1
CR-BCB2	Cadmium	mg/kg	0.064	1
CR-BCB2	Calcium	mg/kg	2850	1
CR-BCB2	Chromium	mg/kg	5.99	1
CR-BCB2	Cobalt	mg/kg	3	1
CR-BCB2	Copper	mg/kg	8.3	1
CR-BCB2	Iron	mg/kg	9090	1
CR-BCB2	Lead	mg/kg	3.12	1
CR-BCB2	Magnesium	mg/kg	2710	1
CR-BCB2	Manganese	mg/kg	171	1
CR-BCB2	Mercury	mg/kg	0.002	0
CR-BCB2	Nickel	mg/kg	6.74	1
CR-BCB2	Potassium	mg/kg	719	1
CR-BCB2	Selenium	mg/kg	0.03	0
CR-BCB2	Silver	mg/kg	0.032	1
CR-BCB2	Sodium	mg/kg	164	1
CR-BCB2	Thallium	mg/kg	0.047	1
CR-BCB2	Vanadium	mg/kg	13.4	1
CR-BCB2	Zinc	mg/kg	21.8	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-BCB3	Aluminum	mg/kg	6220	1
CR-BCB3	Antimony	mg/kg	0.081	1
CR-BCB3	Arsenic	mg/kg	1.68	1
CR-BCB3	Barium	mg/kg	45.6	1
CR-BCB3	Beryllium	mg/kg	0.29	1
CR-BCB3	Cadmium	mg/kg	0.077	1
CR-BCB3	Calcium	mg/kg	2170	1
CR-BCB3	Chromium	mg/kg	6.14	1
CR-BCB3	Cobalt	mg/kg	3.4	1
CR-BCB3	Copper	mg/kg	12.3	1
CR-BCB3	Iron	mg/kg	10500	1
CR-BCB3	Lead	mg/kg	3.98	1
CR-BCB3	Magnesium	mg/kg	3690	1
CR-BCB3	Manganese	mg/kg	201	1
CR-BCB3	Mercury	mg/kg	0.002	0
CR-BCB3	Nickel	mg/kg	9.81	1
CR-BCB3	Potassium	mg/kg	1020	1
CR-BCB3	Selenium	mg/kg	0.03	0
CR-BCB3	Silver	mg/kg	0.076	1
CR-BCB3	Sodium	mg/kg	214	1
CR-BCB3	Thallium	mg/kg	0.035	1
CR-BCB3	Vanadium	mg/kg	13.1	1
CR-BCB3	Zinc	mg/kg	26.7	1
CR-BCC2	Aluminum	mg/kg	10000	1
CR-BCC2	Antimony	mg/kg	0.086	1
CR-BCC2	Arsenic	mg/kg	1.36	1
CR-BCC2	Barium	mg/kg	101	1
CR-BCC2	Beryllium	mg/kg	0.4	1
CR-BCC2	Cadmium	mg/kg	0.413	1
CR-BCC2	Calcium	mg/kg	1830	1
CR-BCC2	Chromium	mg/kg	7.53	1
CR-BCC2	Cobalt	mg/kg	3.5	1
CR-BCC2	Copper	mg/kg	9	1
CR-BCC2	Iron	mg/kg	11200	1
CR-BCC2	Lead	mg/kg	8.5	1
CR-BCC2	Magnesium	mg/kg	2560	1
CR-BCC2	Manganese	mg/kg	261	1
CR-BCC2	Mercury	mg/kg	0.007	1
CR-BCC2	Nickel	mg/kg	5.99	1
CR-BCC2	Potassium	mg/kg	1030	1
CR-BCC2	Selenium	mg/kg	0.03	0
CR-BCC2	Silver	mg/kg	0.027	1
CR-BCC2	Sodium	mg/kg	93	1
CR-BCC2	Thallium	mg/kg	0.117	1
CR-BCC2	Vanadium	mg/kg	12	1
CR-BCC2	Zinc	mg/kg	55.4	1
CR-BCC3	Aluminum	mg/kg	10400	1
CR-BCC3	Antimony	mg/kg	0.043	1
CR-BCC3	Arsenic	mg/kg	1.21	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-BCC3	Barium	mg/kg	102	1
CR-BCC3	Beryllium	mg/kg	0.39	1
CR-BCC3	Cadmium	mg/kg	0.076	1
CR-BCC3	Calcium	mg/kg	1650	1
CR-BCC3	Chromium	mg/kg	7.24	1
CR-BCC3	Cobalt	mg/kg	3.2	1
CR-BCC3	Copper	mg/kg	9.6	1
CR-BCC3	Iron	mg/kg	10300	1
CR-BCC3	Lead	mg/kg	4.1	1
CR-BCC3	Magnesium	mg/kg	2350	1
CR-BCC3	Manganese	mg/kg	213	1
CR-BCC3	Mercury	mg/kg	0.003	1
CR-BCC3	Nickel	mg/kg	5.88	1
CR-BCC3	Potassium	mg/kg	1090	1
CR-BCC3	Selenium	mg/kg	0.03	0
CR-BCC3	Silver	mg/kg	0.048	1
CR-BCC3	Sodium	mg/kg	99	1
CR-BCC3	Thallium	mg/kg	0.084	1
CR-BCC3	Vanadium	mg/kg	11.7	1
CR-BCC3	Zinc	mg/kg	25.5	1
CR-BCE1	Aluminum	mg/kg	5880	1
CR-BCE1	Antimony	mg/kg	0.073	1
CR-BCE1	Arsenic	mg/kg	1.42	1
CR-BCE1	Barium	mg/kg	66.4	1
CR-BCE1	Beryllium	mg/kg	0.28	1
CR-BCE1	Cadmium	mg/kg	0.356	1
CR-BCE1	Calcium	mg/kg	2240	1
CR-BCE1	Chromium	mg/kg	5.55	1
CR-BCE1	Cobalt	mg/kg	3.2	1
CR-BCE1	Copper	mg/kg	9	1
CR-BCE1	Iron	mg/kg	10500	1
CR-BCE1	Lead	mg/kg	12.7	1
CR-BCE1	Magnesium	mg/kg	3050	1
CR-BCE1	Manganese	mg/kg	181	1
CR-BCE1	Mercury	mg/kg	0.002	0
CR-BCE1	Nickel	mg/kg	6.72	1
CR-BCE1	Potassium	mg/kg	833	1
CR-BCE1	Selenium	mg/kg	0.03	0
CR-BCE1	Silver	mg/kg	0.041	1
CR-BCE1	Sodium	mg/kg	125	1
CR-BCE1	Thallium	mg/kg	0.275	1
CR-BCE1	Vanadium	mg/kg	13.2	1
CR-BCE1	Zinc	mg/kg	102	1
CR-BCE3	Aluminum	mg/kg	9750	1
CR-BCE3	Antimony	mg/kg	0.121	1
CR-BCE3	Arsenic	mg/kg	1.17	1
CR-BCE3	Barium	mg/kg	99.1	1
CR-BCE3	Beryllium	mg/kg	0.39	1
CR-BCE3	Cadmium	mg/kg	0.111	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
CR-BCE3	Calcium	mg/kg	1650	1
CR-BCE3	Chromium	mg/kg	6.08	1
CR-BCE3	Cobalt	mg/kg	3.5	1
CR-BCE3	Copper	mg/kg	9.5	1
CR-BCE3	Iron	mg/kg	10400	1
CR-BCE3	Lead	mg/kg	4.34	1
CR-BCE3	Magnesium	mg/kg	2450	1
CR-BCE3	Manganese	mg/kg	191	1
CR-BCE3	Mercury	mg/kg	0.004	1
CR-BCE3	Nickel	mg/kg	6.71	1
CR-BCE3	Potassium	mg/kg	913	1
CR-BCE3	Selenium	mg/kg	0.03	0
CR-BCE3	Silver	mg/kg	0.024	1
CR-BCE3	Sodium	mg/kg	101	1
CR-BCE3	Thallium	mg/kg	0.079	1
CR-BCE3	Vanadium	mg/kg	11.7	1
CR-BCE3	Zinc	mg/kg	26.2	1
CR-BFA3	Aluminum	mg/kg	9120	1
CR-BFA3	Antimony	mg/kg	0.052	0
CR-BFA3	Arsenic	mg/kg	1.57	1
CR-BFA3	Barium	mg/kg	83.1	1
CR-BFA3	Beryllium	mg/kg	0.25	1
CR-BFA3	Cadmium	mg/kg	0.064	1
CR-BFA3	Calcium	mg/kg	2400	1
CR-BFA3	Chromium	mg/kg	11.1	1
CR-BFA3	Cobalt	mg/kg	4.43	1
CR-BFA3	Copper	mg/kg	11.1	1
CR-BFA3	Iron	mg/kg	12600	1
CR-BFA3	Lead	mg/kg	7.9	1
CR-BFA3	Magnesium	mg/kg	3280	1
CR-BFA3	Manganese	mg/kg	109	1
CR-BFA3	Mercury	mg/kg	0.007	1
CR-BFA3	Nickel	mg/kg	10.3	1
CR-BFA3	Potassium	mg/kg	1670	1
CR-BFA3	Selenium	mg/kg	0.2	0
CR-BFA3	Silver	mg/kg	0.096	1
CR-BFA3	Sodium	mg/kg	120	1
CR-BFA3	Thallium	mg/kg	0.102	1
CR-BFA3	Vanadium	mg/kg	18.3	1
CR-BFA3	Zinc	mg/kg	32.6	1
CR-BFB3	Aluminum	mg/kg	9700	1
CR-BFB3	Antimony	mg/kg	0.041	0
CR-BFB3	Arsenic	mg/kg	1.79	1
CR-BFB3	Barium	mg/kg	94.7	1
CR-BFB3	Beryllium	mg/kg	0.28	1
CR-BFB3	Cadmium	mg/kg	0.081	1
CR-BFB3	Calcium	mg/kg	2670	1
CR-BFB3	Chromium	mg/kg	13.2	1
CR-BFB3	Cobalt	mg/kg	5.39	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-BFB3	Copper	mg/kg	13.3	1
CR-BFB3	Iron	mg/kg	13700	1
CR-BFB3	Lead	mg/kg	8.2	1
CR-BFB3	Magnesium	mg/kg	3820	1
CR-BFB3	Manganese	mg/kg	261	1
CR-BFB3	Mercury	mg/kg	0.021	1
CR-BFB3	Nickel	mg/kg	12.8	1
CR-BFB3	Potassium	mg/kg	1770	1
CR-BFB3	Selenium	mg/kg	0.2	0
CR-BFB3	Silver	mg/kg	0.054	1
CR-BFB3	Sodium	mg/kg	103	1
CR-BFB3	Thallium	mg/kg	0.115	1
CR-BFB3	Vanadium	mg/kg	20.3	1
CR-BFB3	Zinc	mg/kg	38.6	1
CR-BFC3	Aluminum	mg/kg	9530	1
CR-BFC3	Antimony	mg/kg	0.122	1
CR-BFC3	Arsenic	mg/kg	1.39	1
CR-BFC3	Barium	mg/kg	127	1
CR-BFC3	Beryllium	mg/kg	0.27	1
CR-BFC3	Cadmium	mg/kg	0.163	1
CR-BFC3	Calcium	mg/kg	2230	1
CR-BFC3	Chromium	mg/kg	12.1	1
CR-BFC3	Cobalt	mg/kg	4.57	1
CR-BFC3	Copper	mg/kg	9.4	1
CR-BFC3	Iron	mg/kg	12500	1
CR-BFC3	Lead	mg/kg	24	1
CR-BFC3	Magnesium	mg/kg	3190	1
CR-BFC3	Manganese	mg/kg	324	1
CR-BFC3	Mercury	mg/kg	0.012	1
CR-BFC3	Nickel	mg/kg	10.4	1
CR-BFC3	Potassium	mg/kg	1710	1
CR-BFC3	Selenium	mg/kg	0.2	0
CR-BFC3	Silver	mg/kg	0.075	1
CR-BFC3	Sodium	mg/kg	93	1
CR-BFC3	Thallium	mg/kg	0.11	1
CR-BFC3	Vanadium	mg/kg	16.7	1
CR-BFC3	Zinc	mg/kg	58.9	1
CR-BFD3	Aluminum	mg/kg	9600	1
CR-BFD3	Antimony	mg/kg	0.032	0
CR-BFD3	Arsenic	mg/kg	1.49	1
CR-BFD3	Barium	mg/kg	97.9	1
CR-BFD3	Beryllium	mg/kg	0.27	1
CR-BFD3	Cadmium	mg/kg	0.073	1
CR-BFD3	Calcium	mg/kg	2350	1
CR-BFD3	Chromium	mg/kg	12.9	1
CR-BFD3	Cobalt	mg/kg	4.88	1
CR-BFD3	Copper	mg/kg	11.6	1
CR-BFD3	Iron	mg/kg	12800	1
CR-BFD3	Lead	mg/kg	7.2	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-BFD3	Magnesium	mg/kg	3390	1
CR-BFD3	Manganese	mg/kg	233	1
CR-BFD3	Mercury	mg/kg	0.007	1
CR-BFD3	Nickel	mg/kg	10.6	1
CR-BFD3	Potassium	mg/kg	1720	1
CR-BFD3	Selenium	mg/kg	0.2	0
CR-BFD3	Silver	mg/kg	0.056	1
CR-BFD3	Sodium	mg/kg	89	1
CR-BFD3	Thallium	mg/kg	0.115	1
CR-BFD3	Vanadium	mg/kg	18.7	1
CR-BFD3	Zinc	mg/kg	37.7	1
CR-CFB3	Aluminum	mg/kg	10700	1
CR-CFB3	Antimony	mg/kg	0.069	1
CR-CFB3	Arsenic	mg/kg	1.51	1
CR-CFB3	Barium	mg/kg	121	1
CR-CFB3	Beryllium	mg/kg	0.37	1
CR-CFB3	Cadmium	mg/kg	0.162	1
CR-CFB3	Calcium	mg/kg	2830	1
CR-CFB3	Chromium	mg/kg	15	1
CR-CFB3	Cobalt	mg/kg	5.73	1
CR-CFB3	Copper	mg/kg	14	1
CR-CFB3	Iron	mg/kg	15300	1
CR-CFB3	Lead	mg/kg	7	1
CR-CFB3	Magnesium	mg/kg	3730	1
CR-CFB3	Manganese	mg/kg	299	1
CR-CFB3	Mercury	mg/kg	0.004	1
CR-CFB3	Nickel	mg/kg	13.1	1
CR-CFB3	Potassium	mg/kg	2200	1
CR-CFB3	Selenium	mg/kg	0.2	0
CR-CFB3	Silver	mg/kg	0.123	1
CR-CFB3	Sodium	mg/kg	114	1
CR-CFB3	Thallium	mg/kg	0.136	1
CR-CFB3	Vanadium	mg/kg	21.2	1
CR-CFB3	Zinc	mg/kg	43.8	1
CR-CFE3	Aluminum	mg/kg	10900	1
CR-CFE3	Antimony	mg/kg	0.158	1
CR-CFE3	Arsenic	mg/kg	4.14	1
CR-CFE3	Barium	mg/kg	128	1
CR-CFE3	Beryllium	mg/kg	0.37	1
CR-CFE3	Cadmium	mg/kg	0.419	1
CR-CFE3	Calcium	mg/kg	3040	1
CR-CFE3	Chromium	mg/kg	14.2	1
CR-CFE3	Cobalt	mg/kg	5.41	1
CR-CFE3	Copper	mg/kg	13.7	1
CR-CFE3	Iron	mg/kg	15100	1
CR-CFE3	Lead	mg/kg	20.9	1
CR-CFE3	Magnesium	mg/kg	3850	1
CR-CFE3	Manganese	mg/kg	311	1
CR-CFE3	Mercury	mg/kg	0.04	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CFE3	Nickel	mg/kg	12.7	1
CR-CFE3	Potassium	mg/kg	2360	1
CR-CFE3	Selenium	mg/kg	0.2	0
CR-CFE3	Silver	mg/kg	0.054	1
CR-CFE3	Sodium	mg/kg	108	1
CR-CFE3	Thallium	mg/kg	0.137	1
CR-CFE3	Vanadium	mg/kg	19.3	1
CR-CFE3	Zinc	mg/kg	62.5	1
CR-CRA1	Aluminum	mg/kg	9170	1
CR-CRA1	Antimony	mg/kg	0.167	1
CR-CRA1	Arsenic	mg/kg	2.44	1
CR-CRA1	Barium	mg/kg	100	1
CR-CRA1	Beryllium	mg/kg	0.35	1
CR-CRA1	Cadmium	mg/kg	0.132	1
CR-CRA1	Calcium	mg/kg	3570	1
CR-CRA1	Chromium	mg/kg	14.9	1
CR-CRA1	Cobalt	mg/kg	6.34	1
CR-CRA1	Copper	mg/kg	17.6	1
CR-CRA1	Iron	mg/kg	17600	1
CR-CRA1	Lead	mg/kg	7.25	1
CR-CRA1	Magnesium	mg/kg	4080	1
CR-CRA1	Manganese	mg/kg	215	1
CR-CRA1	Mercury	mg/kg	0.01	1
CR-CRA1	Nickel	mg/kg	16.4	1
CR-CRA1	Potassium	mg/kg	1250	1
CR-CRA1	Selenium	mg/kg	0.2	0
CR-CRA1	Silver	mg/kg	0.069	1
CR-CRA1	Sodium	mg/kg	103	1
CR-CRA1	Thallium	mg/kg	0.096	1
CR-CRA1	Vanadium	mg/kg	21.4	1
CR-CRA1	Zinc	mg/kg	47.7	1
CR-CRA2	Aluminum	mg/kg	9780	1
CR-CRA2	Antimony	mg/kg	0.192	1
CR-CRA2	Arsenic	mg/kg	2.6	1
CR-CRA2	Barium	mg/kg	95.9	1
CR-CRA2	Beryllium	mg/kg	0.38	1
CR-CRA2	Cadmium	mg/kg	0.156	1
CR-CRA2	Calcium	mg/kg	4990	1
CR-CRA2	Chromium	mg/kg	16.1	1
CR-CRA2	Cobalt	mg/kg	6.66	1
CR-CRA2	Copper	mg/kg	19.9	1
CR-CRA2	Iron	mg/kg	19800	1
CR-CRA2	Lead	mg/kg	6.98	1
CR-CRA2	Magnesium	mg/kg	4860	1
CR-CRA2	Manganese	mg/kg	229	1
CR-CRA2	Mercury	mg/kg	0.014	1
CR-CRA2	Nickel	mg/kg	18.4	1
CR-CRA2	Potassium	mg/kg	1160	1
CR-CRA2	Selenium	mg/kg	0.2	0

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CRA2	Silver	mg/kg	0.149	1
CR-CRA2	Sodium	mg/kg	117	1
CR-CRA2	Thallium	mg/kg	0.09	1
CR-CRA2	Vanadium	mg/kg	22.5	1
CR-CRA2	Zinc	mg/kg	50.7	1
CR-CRA3	Aluminum	mg/kg	7280	1
CR-CRA3	Antimony	mg/kg	0.206	1
CR-CRA3	Arsenic	mg/kg	2.71	1
CR-CRA3	Barium	mg/kg	70.9	1
CR-CRA3	Beryllium	mg/kg	0.29	1
CR-CRA3	Cadmium	mg/kg	0.14	1
CR-CRA3	Calcium	mg/kg	9090	1
CR-CRA3	Chromium	mg/kg	13	1
CR-CRA3	Cobalt	mg/kg	5.81	1
CR-CRA3	Copper	mg/kg	15.3	1
CR-CRA3	Iron	mg/kg	17400	1
CR-CRA3	Lead	mg/kg	5.62	1
CR-CRA3	Magnesium	mg/kg	5630	1
CR-CRA3	Manganese	mg/kg	178	1
CR-CRA3	Mercury	mg/kg	0.011	1
CR-CRA3	Nickel	mg/kg	15.1	1
CR-CRA3	Potassium	mg/kg	867	1
CR-CRA3	Selenium	mg/kg	0.2	0
CR-CRA3	Silver	mg/kg	0.132	1
CR-CRA3	Sodium	mg/kg	115	1
CR-CRA3	Thallium	mg/kg	0.081	1
CR-CRA3	Vanadium	mg/kg	20.5	1
CR-CRA3	Zinc	mg/kg	44.2	1
CR-CRB1	Aluminum	mg/kg	14400	1
CR-CRB1	Antimony	mg/kg	0.189	1
CR-CRB1	Arsenic	mg/kg	1.63	1
CR-CRB1	Barium	mg/kg	144	1
CR-CRB1	Beryllium	mg/kg	0.48	1
CR-CRB1	Cadmium	mg/kg	0.158	1
CR-CRB1	Calcium	mg/kg	2550	1
CR-CRB1	Chromium	mg/kg	15.4	1
CR-CRB1	Cobalt	mg/kg	7.31	1
CR-CRB1	Copper	mg/kg	17.8	1
CR-CRB1	Iron	mg/kg	19000	1
CR-CRB1	Lead	mg/kg	8.14	1
CR-CRB1	Magnesium	mg/kg	4410	1
CR-CRB1	Manganese	mg/kg	423	1
CR-CRB1	Mercury	mg/kg	0.009	1
CR-CRB1	Nickel	mg/kg	16.6	1
CR-CRB1	Potassium	mg/kg	2600	1
CR-CRB1	Selenium	mg/kg	0.2	0
CR-CRB1	Silver	mg/kg	0.039	1
CR-CRB1	Sodium	mg/kg	129	1
CR-CRB1	Thallium	mg/kg	0.132	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CRB1	Vanadium	mg/kg	20.9	1
CR-CRB1	Zinc	mg/kg	57.8	1
CR-CRB2	Aluminum	mg/kg	13700	1
CR-CRB2	Antimony	mg/kg	0.181	1
CR-CRB2	Arsenic	mg/kg	2.08	1
CR-CRB2	Barium	mg/kg	145	1
CR-CRB2	Beryllium	mg/kg	0.48	1
CR-CRB2	Cadmium	mg/kg	0.156	1
CR-CRB2	Calcium	mg/kg	3200	1
CR-CRB2	Chromium	mg/kg	19.2	1
CR-CRB2	Cobalt	mg/kg	7.53	1
CR-CRB2	Copper	mg/kg	21.7	1
CR-CRB2	Iron	mg/kg	19500	1
CR-CRB2	Lead	mg/kg	8.02	1
CR-CRB2	Magnesium	mg/kg	4640	1
CR-CRB2	Manganese	mg/kg	361	1
CR-CRB2	Mercury	mg/kg	0.01	1
CR-CRB2	Nickel	mg/kg	18	1
CR-CRB2	Potassium	mg/kg	2470	1
CR-CRB2	Selenium	mg/kg	0.2	0
CR-CRB2	Silver	mg/kg	0.087	1
CR-CRB2	Sodium	mg/kg	152	1
CR-CRB2	Thallium	mg/kg	0.116	1
CR-CRB2	Vanadium	mg/kg	22.2	1
CR-CRB2	Zinc	mg/kg	57.3	1
CR-CRB3	Aluminum	mg/kg	10200	1
CR-CRB3	Antimony	mg/kg	0.226	1
CR-CRB3	Arsenic	mg/kg	2.72	1
CR-CRB3	Barium	mg/kg	136	1
CR-CRB3	Beryllium	mg/kg	0.36	1
CR-CRB3	Cadmium	mg/kg	0.216	1
CR-CRB3	Calcium	mg/kg	17500	1
CR-CRB3	Chromium	mg/kg	15.7	1
CR-CRB3	Cobalt	mg/kg	7.26	1
CR-CRB3	Copper	mg/kg	21.2	1
CR-CRB3	Iron	mg/kg	18400	1
CR-CRB3	Lead	mg/kg	7.52	1
CR-CRB3	Magnesium	mg/kg	6400	1
CR-CRB3	Manganese	mg/kg	314	1
CR-CRB3	Mercury	mg/kg	0.012	1
CR-CRB3	Nickel	mg/kg	18.6	1
CR-CRB3	Potassium	mg/kg	1900	1
CR-CRB3	Selenium	mg/kg	0.2	0
CR-CRB3	Silver	mg/kg	0.167	1
CR-CRB3	Sodium	mg/kg	151	1
CR-CRB3	Thallium	mg/kg	0.099	1
CR-CRB3	Vanadium	mg/kg	23.8	1
CR-CRB3	Zinc	mg/kg	55.9	1
CR-CRC1	Aluminum	mg/kg	7810	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CRC1	Antimony	mg/kg	0.185	1
CR-CRC1	Arsenic	mg/kg	2.89	1
CR-CRC1	Barium	mg/kg	88.2	1
CR-CRC1	Beryllium	mg/kg	0.29	1
CR-CRC1	Cadmium	mg/kg	0.531	1
CR-CRC1	Calcium	mg/kg	2900	1
CR-CRC1	Chromium	mg/kg	10.8	1
CR-CRC1	Cobalt	mg/kg	7.72	1
CR-CRC1	Copper	mg/kg	14.8	1
CR-CRC1	Iron	mg/kg	16400	1
CR-CRC1	Lead	mg/kg	16	1
CR-CRC1	Magnesium	mg/kg	4200	1
CR-CRC1	Manganese	mg/kg	373	1
CR-CRC1	Mercury	mg/kg	0.01	1
CR-CRC1	Nickel	mg/kg	17.4	1
CR-CRC1	Potassium	mg/kg	1020	1
CR-CRC1	Selenium	mg/kg	0.2	0
CR-CRC1	Silver	mg/kg	0.04	1
CR-CRC1	Sodium	mg/kg	75	1
CR-CRC1	Thallium	mg/kg	0.234	1
CR-CRC1	Vanadium	mg/kg	19	1
CR-CRC1	Zinc	mg/kg	97.6	1
CR-CRC3	Aluminum	mg/kg	14300	1
CR-CRC3	Antimony	mg/kg	0.172	1
CR-CRC3	Arsenic	mg/kg	2.02	1
CR-CRC3	Barium	mg/kg	149	1
CR-CRC3	Beryllium	mg/kg	0.46	1
CR-CRC3	Cadmium	mg/kg	0.148	1
CR-CRC3	Calcium	mg/kg	2570	1
CR-CRC3	Chromium	mg/kg	14.1	1
CR-CRC3	Cobalt	mg/kg	6.92	1
CR-CRC3	Copper	mg/kg	18.2	1
CR-CRC3	Iron	mg/kg	18200	1
CR-CRC3	Lead	mg/kg	7.96	1
CR-CRC3	Magnesium	mg/kg	3910	1
CR-CRC3	Manganese	mg/kg	371	1
CR-CRC3	Mercury	mg/kg	0.008	1
CR-CRC3	Nickel	mg/kg	15.2	1
CR-CRC3	Potassium	mg/kg	2050	1
CR-CRC3	Selenium	mg/kg	0.2	0
CR-CRC3	Silver	mg/kg	0.07	1
CR-CRC3	Sodium	mg/kg	143	1
CR-CRC3	Thallium	mg/kg	0.113	1
CR-CRC3	Vanadium	mg/kg	20.5	1
CR-CRC3	Zinc	mg/kg	52.4	1
CR-CRD1	Aluminum	mg/kg	7760	1
CR-CRD1	Antimony	mg/kg	0.083	1
CR-CRD1	Arsenic	mg/kg	1.16	1
CR-CRD1	Barium	mg/kg	84.5	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CRD1	Beryllium	mg/kg	0.27	1
CR-CRD1	Cadmium	mg/kg	0.101	1
CR-CRD1	Calcium	mg/kg	2000	1
CR-CRD1	Chromium	mg/kg	9.88	1
CR-CRD1	Cobalt	mg/kg	3.8	1
CR-CRD1	Copper	mg/kg	9.9	1
CR-CRD1	Iron	mg/kg	11100	1
CR-CRD1	Lead	mg/kg	4.04	1
CR-CRD1	Magnesium	mg/kg	2690	1
CR-CRD1	Manganese	mg/kg	178	1
CR-CRD1	Mercury	mg/kg	0.004	1
CR-CRD1	Nickel	mg/kg	8.72	1
CR-CRD1	Potassium	mg/kg	1040	1
CR-CRD1	Selenium	mg/kg	0.2	0
CR-CRD1	Silver	mg/kg	0.03	1
CR-CRD1	Sodium	mg/kg	96	1
CR-CRD1	Thallium	mg/kg	0.075	0
CR-CRD1	Vanadium	mg/kg	16	1
CR-CRD1	Zinc	mg/kg	29.9	1
CR-CRD2	Aluminum	mg/kg	6000	1
CR-CRD2	Antimony	mg/kg	0.069	1
CR-CRD2	Arsenic	mg/kg	1.13	1
CR-CRD2	Barium	mg/kg	63.9	1
CR-CRD2	Beryllium	mg/kg	0.21	1
CR-CRD2	Cadmium	mg/kg	0.092	1
CR-CRD2	Calcium	mg/kg	2250	1
CR-CRD2	Chromium	mg/kg	9.69	1
CR-CRD2	Cobalt	mg/kg	3.74	1
CR-CRD2	Copper	mg/kg	9.5	1
CR-CRD2	Iron	mg/kg	11100	1
CR-CRD2	Lead	mg/kg	3.6	1
CR-CRD2	Magnesium	mg/kg	2840	1
CR-CRD2	Manganese	mg/kg	172	1
CR-CRD2	Mercury	mg/kg	0.003	1
CR-CRD2	Nickel	mg/kg	9.13	1
CR-CRD2	Potassium	mg/kg	1130	1
CR-CRD2	Selenium	mg/kg	0.2	0
CR-CRD2	Silver	mg/kg	0.02	1
CR-CRD2	Sodium	mg/kg	88	1
CR-CRD2	Thallium	mg/kg	0.066	0
CR-CRD2	Vanadium	mg/kg	15.4	1
CR-CRD2	Zinc	mg/kg	30.5	1
CR-CRD3	Aluminum	mg/kg	6570	1
CR-CRD3	Antimony	mg/kg	0.091	1
CR-CRD3	Arsenic	mg/kg	1.31	1
CR-CRD3	Barium	mg/kg	63.8	1
CR-CRD3	Beryllium	mg/kg	0.25	1
CR-CRD3	Cadmium	mg/kg	0.1	1
CR-CRD3	Calcium	mg/kg	2570	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-CRD3	Chromium	mg/kg	12.2	1
CR-CRD3	Cobalt	mg/kg	4.85	1
CR-CRD3	Copper	mg/kg	12.1	1
CR-CRD3	Iron	mg/kg	12800	1
CR-CRD3	Lead	mg/kg	4.52	1
CR-CRD3	Magnesium	mg/kg	3470	1
CR-CRD3	Manganese	mg/kg	205	1
CR-CRD3	Mercury	mg/kg	0.004	1
CR-CRD3	Nickel	mg/kg	11.6	1
CR-CRD3	Potassium	mg/kg	1460	1
CR-CRD3	Selenium	mg/kg	0.2	0
CR-CRD3	Silver	mg/kg	0.055	1
CR-CRD3	Sodium	mg/kg	105	1
CR-CRD3	Thallium	mg/kg	0.08	0
CR-CRD3	Vanadium	mg/kg	18.6	1
CR-CRD3	Zinc	mg/kg	34.5	1
CR-CRE1	Aluminum	mg/kg	3590	1
CR-CRE1	Antimony	mg/kg	0.064	1
CR-CRE1	Arsenic	mg/kg	0.91	1
CR-CRE1	Barium	mg/kg	39.7	1
CR-CRE1	Beryllium	mg/kg	0.13	1
CR-CRE1	Cadmium	mg/kg	0.101	1
CR-CRE1	Calcium	mg/kg	1700	1
CR-CRE1	Chromium	mg/kg	5.77	1
CR-CRE1	Cobalt	mg/kg	2.48	1
CR-CRE1	Copper	mg/kg	6	1
CR-CRE1	Iron	mg/kg	7370	1
CR-CRE1	Lead	mg/kg	3.3	1
CR-CRE1	Magnesium	mg/kg	1970	1
CR-CRE1	Manganese	mg/kg	111	1
CR-CRE1	Mercury	mg/kg	0.002	1
CR-CRE1	Nickel	mg/kg	6.16	1
CR-CRE1	Potassium	mg/kg	513	1
CR-CRE1	Selenium	mg/kg	0.2	0
CR-CRE1	Silver	mg/kg	0.02	1
CR-CRE1	Sodium	mg/kg	68	1
CR-CRE1	Thallium	mg/kg	0.079	1
CR-CRE1	Vanadium	mg/kg	9.79	1
CR-CRE1	Zinc	mg/kg	26.1	1
CR-CRE2	Aluminum	mg/kg	4140	1
CR-CRE2	Antimony	mg/kg	0.123	1
CR-CRE2	Arsenic	mg/kg	1.13	1
CR-CRE2	Barium	mg/kg	41.6	1
CR-CRE2	Beryllium	mg/kg	0.15	1
CR-CRE2	Cadmium	mg/kg	0.143	1
CR-CRE2	Calcium	mg/kg	1850	1
CR-CRE2	Chromium	mg/kg	6.42	1
CR-CRE2	Cobalt	mg/kg	2.7	1
CR-CRE2	Copper	mg/kg	6.8	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CRE2	Iron	mg/kg	8350	1
CR-CRE2	Lead	mg/kg	4.46	1
CR-CRE2	Magnesium	mg/kg	2150	1
CR-CRE2	Manganese	mg/kg	119	1
CR-CRE2	Mercury	mg/kg	0.003	1
CR-CRE2	Nickel	mg/kg	6.84	1
CR-CRE2	Potassium	mg/kg	628	1
CR-CRE2	Selenium	mg/kg	0.2	0
CR-CRE2	Silver	mg/kg	0.042	1
CR-CRE2	Sodium	mg/kg	68	1
CR-CRE2	Thallium	mg/kg	0.108	1
CR-CRE2	Vanadium	mg/kg	11.3	1
CR-CRE2	Zinc	mg/kg	31.3	1
CR-CSA1	Aluminum	mg/kg	4290	1
CR-CSA1	Antimony	mg/kg	0.071	1
CR-CSA1	Arsenic	mg/kg	1.76	1
CR-CSA1	Barium	mg/kg	63.1	1
CR-CSA1	Beryllium	mg/kg	0.16	1
CR-CSA1	Cadmium	mg/kg	0.066	0
CR-CSA1	Calcium	mg/kg	5600	1
CR-CSA1	Chromium	mg/kg	3.91	1
CR-CSA1	Cobalt	mg/kg	5.53	1
CR-CSA1	Copper	mg/kg	10	1
CR-CSA1	Iron	mg/kg	18400	1
CR-CSA1	Lead	mg/kg	3.25	1
CR-CSA1	Magnesium	mg/kg	3430	1
CR-CSA1	Manganese	mg/kg	307	1
CR-CSA1	Mercury	mg/kg	0.002	0
CR-CSA1	Nickel	mg/kg	4.16	1
CR-CSA1	Potassium	mg/kg	749	1
CR-CSA1	Selenium	mg/kg	0.2	0
CR-CSA1	Silver	mg/kg	0.027	1
CR-CSA1	Sodium	mg/kg	142	1
CR-CSA1	Thallium	mg/kg	0.081	0
CR-CSA1	Vanadium	mg/kg	24.2	1
CR-CSA1	Zinc	mg/kg	34.8	1
CR-CSA2	Aluminum	mg/kg	4280	1
CR-CSA2	Antimony	mg/kg	0.135	1
CR-CSA2	Arsenic	mg/kg	3.13	1
CR-CSA2	Barium	mg/kg	64.2	1
CR-CSA2	Beryllium	mg/kg	0.16	1
CR-CSA2	Cadmium	mg/kg	0.065	0
CR-CSA2	Calcium	mg/kg	5530	1
CR-CSA2	Chromium	mg/kg	4.05	1
CR-CSA2	Cobalt	mg/kg	5.81	1
CR-CSA2	Copper	mg/kg	6.1	1
CR-CSA2	Iron	mg/kg	20000	1
CR-CSA2	Lead	mg/kg	3.47	1
CR-CSA2	Magnesium	mg/kg	3690	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CSA2	Manganese	mg/kg	297	1
CR-CSA2	Mercury	mg/kg	0.002	0
CR-CSA2	Nickel	mg/kg	4.63	1
CR-CSA2	Potassium	mg/kg	722	1
CR-CSA2	Selenium	mg/kg	0.2	0
CR-CSA2	Silver	mg/kg	0.032	1
CR-CSA2	Sodium	mg/kg	139	1
CR-CSA2	Thallium	mg/kg	0.079	0
CR-CSA2	Vanadium	mg/kg	25.6	1
CR-CSA2	Zinc	mg/kg	35.6	1
CR-CSA3	Aluminum	mg/kg	4390	1
CR-CSA3	Antimony	mg/kg	0.089	1
CR-CSA3	Arsenic	mg/kg	1.71	1
CR-CSA3	Barium	mg/kg	65.3	1
CR-CSA3	Beryllium	mg/kg	0.19	1
CR-CSA3	Cadmium	mg/kg	0.059	0
CR-CSA3	Calcium	mg/kg	5400	1
CR-CSA3	Chromium	mg/kg	3.6	1
CR-CSA3	Cobalt	mg/kg	5.71	1
CR-CSA3	Copper	mg/kg	6.4	1
CR-CSA3	Iron	mg/kg	19200	1
CR-CSA3	Lead	mg/kg	3.37	1
CR-CSA3	Magnesium	mg/kg	3460	1
CR-CSA3	Manganese	mg/kg	303	1
CR-CSA3	Mercury	mg/kg	0.003	1
CR-CSA3	Nickel	mg/kg	4.3	1
CR-CSA3	Potassium	mg/kg	746	1
CR-CSA3	Selenium	mg/kg	0.2	0
CR-CSA3	Silver	mg/kg	0.027	1
CR-CSA3	Sodium	mg/kg	141	1
CR-CSA3	Thallium	mg/kg	0.075	0
CR-CSA3	Vanadium	mg/kg	22.7	1
CR-CSA3	Zinc	mg/kg	36.8	1
CR-CSB1	Aluminum	mg/kg	4190	1
CR-CSB1	Antimony	mg/kg	0.086	1
CR-CSB1	Arsenic	mg/kg	1.47	1
CR-CSB1	Barium	mg/kg	60.4	1
CR-CSB1	Beryllium	mg/kg	0.17	1
CR-CSB1	Cadmium	mg/kg	0.052	0
CR-CSB1	Calcium	mg/kg	5320	1
CR-CSB1	Chromium	mg/kg	3.78	1
CR-CSB1	Cobalt	mg/kg	6.23	1
CR-CSB1	Copper	mg/kg	6.3	1
CR-CSB1	Iron	mg/kg	24000	1
CR-CSB1	Lead	mg/kg	3.37	1
CR-CSB1	Magnesium	mg/kg	3680	1
CR-CSB1	Manganese	mg/kg	325	1
CR-CSB1	Mercury	mg/kg	0.002	1
CR-CSB1	Nickel	mg/kg	4.72	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CSB1	Potassium	mg/kg	732	1
CR-CSB1	Selenium	mg/kg	0.2	0
CR-CSB1	Silver	mg/kg	0.029	1
CR-CSB1	Sodium	mg/kg	149	1
CR-CSB1	Thallium	mg/kg	0.053	0
CR-CSB1	Vanadium	mg/kg	25.6	1
CR-CSB1	Zinc	mg/kg	39.3	1
CR-CSB2	Aluminum	mg/kg	3840	1
CR-CSB2	Antimony	mg/kg	0.076	1
CR-CSB2	Arsenic	mg/kg	1.28	1
CR-CSB2	Barium	mg/kg	58.6	1
CR-CSB2	Beryllium	mg/kg	0.15	1
CR-CSB2	Cadmium	mg/kg	0.061	0
CR-CSB2	Calcium	mg/kg	4530	1
CR-CSB2	Chromium	mg/kg	3.42	1
CR-CSB2	Cobalt	mg/kg	6.21	1
CR-CSB2	Copper	mg/kg	5.9	1
CR-CSB2	Iron	mg/kg	24700	1
CR-CSB2	Lead	mg/kg	3.18	1
CR-CSB2	Magnesium	mg/kg	3420	1
CR-CSB2	Manganese	mg/kg	319	1
CR-CSB2	Mercury	mg/kg	0.003	1
CR-CSB2	Nickel	mg/kg	4.57	1
CR-CSB2	Potassium	mg/kg	619	1
CR-CSB2	Selenium	mg/kg	0.2	0
CR-CSB2	Silver	mg/kg	0.025	1
CR-CSB2	Sodium	mg/kg	129	1
CR-CSB2	Thallium	mg/kg	0.062	0
CR-CSB2	Vanadium	mg/kg	24.5	1
CR-CSB2	Zinc	mg/kg	36.3	1
CR-CSB3	Aluminum	mg/kg	4390	1
CR-CSB3	Antimony	mg/kg	0.078	1
CR-CSB3	Arsenic	mg/kg	1.44	1
CR-CSB3	Barium	mg/kg	69.5	1
CR-CSB3	Beryllium	mg/kg	0.18	1
CR-CSB3	Cadmium	mg/kg	0.062	0
CR-CSB3	Calcium	mg/kg	5440	1
CR-CSB3	Chromium	mg/kg	3.89	1
CR-CSB3	Cobalt	mg/kg	6.24	1
CR-CSB3	Copper	mg/kg	6.6	1
CR-CSB3	Iron	mg/kg	18200	1
CR-CSB3	Lead	mg/kg	2.94	1
CR-CSB3	Magnesium	mg/kg	3270	1
CR-CSB3	Manganese	mg/kg	333	1
CR-CSB3	Mercury	mg/kg	0.003	1
CR-CSB3	Nickel	mg/kg	4.33	1
CR-CSB3	Potassium	mg/kg	736	1
CR-CSB3	Selenium	mg/kg	0.2	0
CR-CSB3	Silver	mg/kg	0.025	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CSB3	Sodium	mg/kg	140	1
CR-CSB3	Thallium	mg/kg	0.072	0
CR-CSB3	Vanadium	mg/kg	23.1	1
CR-CSB3	Zinc	mg/kg	34.8	1
CR-CSC1	Aluminum	mg/kg	4860	1
CR-CSC1	Antimony	mg/kg	0.058	1
CR-CSC1	Arsenic	mg/kg	2.04	1
CR-CSC1	Barium	mg/kg	71.5	1
CR-CSC1	Beryllium	mg/kg	0.2	1
CR-CSC1	Cadmium	mg/kg	0.065	0
CR-CSC1	Calcium	mg/kg	6350	1
CR-CSC1	Chromium	mg/kg	4.31	1
CR-CSC1	Cobalt	mg/kg	5.79	1
CR-CSC1	Copper	mg/kg	7	1
CR-CSC1	Iron	mg/kg	18400	1
CR-CSC1	Lead	mg/kg	3.61	1
CR-CSC1	Magnesium	mg/kg	4010	1
CR-CSC1	Manganese	mg/kg	292	1
CR-CSC1	Mercury	mg/kg	0.002	1
CR-CSC1	Nickel	mg/kg	4.95	1
CR-CSC1	Potassium	mg/kg	908	1
CR-CSC1	Selenium	mg/kg	0.2	0
CR-CSC1	Silver	mg/kg	0.031	1
CR-CSC1	Sodium	mg/kg	145	1
CR-CSC1	Thallium	mg/kg	0.077	0
CR-CSC1	Vanadium	mg/kg	22.9	1
CR-CSC1	Zinc	mg/kg	38.1	1
CR-CSC2	Aluminum	mg/kg	4480	1
CR-CSC2	Antimony	mg/kg	0.081	1
CR-CSC2	Arsenic	mg/kg	1.86	1
CR-CSC2	Barium	mg/kg	64.5	1
CR-CSC2	Beryllium	mg/kg	0.17	1
CR-CSC2	Cadmium	mg/kg	0.065	0
CR-CSC2	Calcium	mg/kg	5690	1
CR-CSC2	Chromium	mg/kg	4.03	1
CR-CSC2	Cobalt	mg/kg	5.2	1
CR-CSC2	Copper	mg/kg	6	1
CR-CSC2	Iron	mg/kg	17100	1
CR-CSC2	Lead	mg/kg	4.95	1
CR-CSC2	Magnesium	mg/kg	3580	1
CR-CSC2	Manganese	mg/kg	255	1
CR-CSC2	Mercury	mg/kg	0.002	1
CR-CSC2	Nickel	mg/kg	4.11	1
CR-CSC2	Potassium	mg/kg	784	1
CR-CSC2	Selenium	mg/kg	0.2	0
CR-CSC2	Silver	mg/kg	0.029	1
CR-CSC2	Sodium	mg/kg	144	1
CR-CSC2	Thallium	mg/kg	0.068	0
CR-CSC2	Vanadium	mg/kg	23	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CSC2	Zinc	mg/kg	34.4	1
CR-CSC3	Aluminum	mg/kg	4360	1
CR-CSC3	Antimony	mg/kg	0.075	1
CR-CSC3	Arsenic	mg/kg	1.76	1
CR-CSC3	Barium	mg/kg	64.5	1
CR-CSC3	Beryllium	mg/kg	0.17	1
CR-CSC3	Cadmium	mg/kg	0.059	0
CR-CSC3	Calcium	mg/kg	5800	1
CR-CSC3	Chromium	mg/kg	3.63	1
CR-CSC3	Cobalt	mg/kg	5.36	1
CR-CSC3	Copper	mg/kg	6.1	1
CR-CSC3	Iron	mg/kg	18000	1
CR-CSC3	Lead	mg/kg	3.18	1
CR-CSC3	Magnesium	mg/kg	3570	1
CR-CSC3	Manganese	mg/kg	260	1
CR-CSC3	Mercury	mg/kg	0.002	0
CR-CSC3	Nickel	mg/kg	4.27	1
CR-CSC3	Potassium	mg/kg	777	1
CR-CSC3	Selenium	mg/kg	0.2	0
CR-CSC3	Silver	mg/kg	0.027	1
CR-CSC3	Sodium	mg/kg	136	1
CR-CSC3	Thallium	mg/kg	0.088	0
CR-CSC3	Vanadium	mg/kg	23.4	1
CR-CSC3	Zinc	mg/kg	35.1	1
CR-CSD1	Aluminum	mg/kg	5430	1
CR-CSD1	Antimony	mg/kg	0.073	1
CR-CSD1	Arsenic	mg/kg	2.31	1
CR-CSD1	Barium	mg/kg	81.5	1
CR-CSD1	Beryllium	mg/kg	0.21	1
CR-CSD1	Cadmium	mg/kg	0.089	0
CR-CSD1	Calcium	mg/kg	8230	1
CR-CSD1	Chromium	mg/kg	4.59	1
CR-CSD1	Cobalt	mg/kg	6.36	1
CR-CSD1	Copper	mg/kg	7.4	1
CR-CSD1	Iron	mg/kg	19900	1
CR-CSD1	Lead	mg/kg	4.43	1
CR-CSD1	Magnesium	mg/kg	4360	1
CR-CSD1	Manganese	mg/kg	334	1
CR-CSD1	Mercury	mg/kg	0.004	1
CR-CSD1	Nickel	mg/kg	5.15	1
CR-CSD1	Potassium	mg/kg	1020	1
CR-CSD1	Selenium	mg/kg	0.2	0
CR-CSD1	Silver	mg/kg	0.043	1
CR-CSD1	Sodium	mg/kg	175	1
CR-CSD1	Thallium	mg/kg	0.096	1
CR-CSD1	Vanadium	mg/kg	26.3	1
CR-CSD1	Zinc	mg/kg	42.1	1
CR-CSD2-1	Aluminum	mg/kg	4865	1
CR-CSD2-1	Antimony	mg/kg	0.071	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CSD2-1	Arsenic	mg/kg	2.175	1
CR-CSD2-1	Barium	mg/kg	73.15	1
CR-CSD2-1	Beryllium	mg/kg	0.19	1
CR-CSD2-1	Cadmium	mg/kg	0.092	1
CR-CSD2-1	Calcium	mg/kg	7185	1
CR-CSD2-1	Chromium	mg/kg	3.99	1
CR-CSD2-1	Cobalt	mg/kg	5.97	1
CR-CSD2-1	Copper	mg/kg	6.4	1
CR-CSD2-1	Iron	mg/kg	18000	1
CR-CSD2-1	Lead	mg/kg	3.74	1
CR-CSD2-1	Magnesium	mg/kg	3990	1
CR-CSD2-1	Manganese	mg/kg	304	1
CR-CSD2-1	Mercury	mg/kg	0.003	1
CR-CSD2-1	Nickel	mg/kg	4.535	1
CR-CSD2-1	Potassium	mg/kg	895.5	1
CR-CSD2-1	Selenium	mg/kg	0.2	0
CR-CSD2-1	Silver	mg/kg	0.0415	1
CR-CSD2-1	Sodium	mg/kg	143.5	1
CR-CSD2-1	Thallium	mg/kg	0.121	1
CR-CSD2-1	Vanadium	mg/kg	22.75	1
CR-CSD2-1	Zinc	mg/kg	38.45	1
CR-CSD3	Aluminum	mg/kg	4830	1
CR-CSD3	Antimony	mg/kg	0.074	1
CR-CSD3	Arsenic	mg/kg	4.12	1
CR-CSD3	Barium	mg/kg	64.6	1
CR-CSD3	Beryllium	mg/kg	0.18	1
CR-CSD3	Cadmium	mg/kg	0.092	1
CR-CSD3	Calcium	mg/kg	6160	1
CR-CSD3	Chromium	mg/kg	4.47	1
CR-CSD3	Cobalt	mg/kg	5.23	1
CR-CSD3	Copper	mg/kg	6.1	1
CR-CSD3	Iron	mg/kg	16900	1
CR-CSD3	Lead	mg/kg	4.38	1
CR-CSD3	Magnesium	mg/kg	3870	1
CR-CSD3	Manganese	mg/kg	235	1
CR-CSD3	Mercury	mg/kg	0.003	1
CR-CSD3	Nickel	mg/kg	4.55	1
CR-CSD3	Potassium	mg/kg	963	1
CR-CSD3	Selenium	mg/kg	0.2	0
CR-CSD3	Silver	mg/kg	0.029	1
CR-CSD3	Sodium	mg/kg	135	1
CR-CSD3	Thallium	mg/kg	0.105	1
CR-CSD3	Vanadium	mg/kg	22.1	1
CR-CSD3	Zinc	mg/kg	39.2	1
CR-CSE1	Aluminum	mg/kg	4750	1
CR-CSE1	Antimony	mg/kg	0.068	1
CR-CSE1	Arsenic	mg/kg	1.88	1
CR-CSE1	Barium	mg/kg	71.8	1
CR-CSE1	Beryllium	mg/kg	0.18	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CSE1	Cadmium	mg/kg	0.059	0
CR-CSE1	Calcium	mg/kg	6320	1
CR-CSE1	Chromium	mg/kg	3.97	1
CR-CSE1	Cobalt	mg/kg	6.07	1
CR-CSE1	Copper	mg/kg	6.8	1
CR-CSE1	Iron	mg/kg	19800	1
CR-CSE1	Lead	mg/kg	3.55	1
CR-CSE1	Magnesium	mg/kg	4030	1
CR-CSE1	Manganese	mg/kg	322	1
CR-CSE1	Mercury	mg/kg	0.003	1
CR-CSE1	Nickel	mg/kg	4.86	1
CR-CSE1	Potassium	mg/kg	880	1
CR-CSE1	Selenium	mg/kg	0.2	0
CR-CSE1	Silver	mg/kg	0.028	1
CR-CSE1	Sodium	mg/kg	147	1
CR-CSE1	Thallium	mg/kg	0.074	0
CR-CSE1	Vanadium	mg/kg	22.9	1
CR-CSE1	Zinc	mg/kg	38.2	1
CR-CSE2	Aluminum	mg/kg	4650	1
CR-CSE2	Antimony	mg/kg	0.065	1
CR-CSE2	Arsenic	mg/kg	1.76	1
CR-CSE2	Barium	mg/kg	71.7	1
CR-CSE2	Beryllium	mg/kg	0.18	1
CR-CSE2	Cadmium	mg/kg	0.069	0
CR-CSE2	Calcium	mg/kg	6040	1
CR-CSE2	Chromium	mg/kg	4.33	1
CR-CSE2	Cobalt	mg/kg	5.44	1
CR-CSE2	Copper	mg/kg	6.2	1
CR-CSE2	Iron	mg/kg	17500	1
CR-CSE2	Lead	mg/kg	3.34	1
CR-CSE2	Magnesium	mg/kg	3470	1
CR-CSE2	Manganese	mg/kg	308	1
CR-CSE2	Mercury	mg/kg	0.002	1
CR-CSE2	Nickel	mg/kg	4.31	1
CR-CSE2	Potassium	mg/kg	837	1
CR-CSE2	Selenium	mg/kg	0.2	0
CR-CSE2	Silver	mg/kg	0.027	1
CR-CSE2	Sodium	mg/kg	146	1
CR-CSE2	Thallium	mg/kg	0.078	0
CR-CSE2	Vanadium	mg/kg	23	1
CR-CSE2	Zinc	mg/kg	35.7	1
CR-CSE3	Aluminum	mg/kg	4240	1
CR-CSE3	Antimony	mg/kg	0.076	1
CR-CSE3	Arsenic	mg/kg	1.59	1
CR-CSE3	Barium	mg/kg	62.5	1
CR-CSE3	Beryllium	mg/kg	0.15	1
CR-CSE3	Cadmium	mg/kg	0.055	0
CR-CSE3	Calcium	mg/kg	5380	1
CR-CSE3	Chromium	mg/kg	3.9	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-CSE3	Cobalt	mg/kg	5.02	1
CR-CSE3	Copper	mg/kg	5.5	1
CR-CSE3	Iron	mg/kg	16800	1
CR-CSE3	Lead	mg/kg	3.71	1
CR-CSE3	Magnesium	mg/kg	3290	1
CR-CSE3	Manganese	mg/kg	266	1
CR-CSE3	Mercury	mg/kg	0.002	1
CR-CSE3	Nickel	mg/kg	3.93	1
CR-CSE3	Potassium	mg/kg	730	1
CR-CSE3	Selenium	mg/kg	0.2	0
CR-CSE3	Silver	mg/kg	0.026	1
CR-CSE3	Sodium	mg/kg	134	1
CR-CSE3	Thallium	mg/kg	0.07	0
CR-CSE3	Vanadium	mg/kg	21.9	1
CR-CSE3	Zinc	mg/kg	33.8	1
CR-ENA1	Aluminum	mg/kg	4920	1
CR-ENA1	Antimony	mg/kg	0.107	1
CR-ENA1	Arsenic	mg/kg	1.78	1
CR-ENA1	Barium	mg/kg	52.3	1
CR-ENA1	Beryllium	mg/kg	0.2	1
CR-ENA1	Cadmium	mg/kg	1.02	1
CR-ENA1	Calcium	mg/kg	3950	1
CR-ENA1	Chromium	mg/kg	9.01	1
CR-ENA1	Cobalt	mg/kg	4.13	1
CR-ENA1	Copper	mg/kg	8.1	1
CR-ENA1	Iron	mg/kg	10900	1
CR-ENA1	Lead	mg/kg	5.04	1
CR-ENA1	Magnesium	mg/kg	3220	1
CR-ENA1	Manganese	mg/kg	165	1
CR-ENA1	Mercury	mg/kg	0.004	1
CR-ENA1	Nickel	mg/kg	9.13	1
CR-ENA1	Potassium	mg/kg	810	1
CR-ENA1	Selenium	mg/kg	0.2	0
CR-ENA1	Silver	mg/kg	0.042	1
CR-ENA1	Sodium	mg/kg	139	1
CR-ENA1	Thallium	mg/kg	0.111	1
CR-ENA1	Vanadium	mg/kg	12.7	1
CR-ENA1	Zinc	mg/kg	31.9	1
CR-ENA2	Aluminum	mg/kg	4560	1
CR-ENA2	Antimony	mg/kg	0.099	1
CR-ENA2	Arsenic	mg/kg	1.62	1
CR-ENA2	Barium	mg/kg	45.1	1
CR-ENA2	Beryllium	mg/kg	0.18	1
CR-ENA2	Cadmium	mg/kg	0.188	1
CR-ENA2	Calcium	mg/kg	3060	1
CR-ENA2	Chromium	mg/kg	8.21	1
CR-ENA2	Cobalt	mg/kg	3.5	1
CR-ENA2	Copper	mg/kg	6.8	1
CR-ENA2	Iron	mg/kg	10200	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-ENA2	Lead	mg/kg	4.84	1
CR-ENA2	Magnesium	mg/kg	3020	1
CR-ENA2	Manganese	mg/kg	154	1
CR-ENA2	Mercury	mg/kg	0.004	1
CR-ENA2	Nickel	mg/kg	8.66	1
CR-ENA2	Potassium	mg/kg	706	1
CR-ENA2	Selenium	mg/kg	0.2	0
CR-ENA2	Silver	mg/kg	0.033	1
CR-ENA2	Sodium	mg/kg	124	1
CR-ENA2	Thallium	mg/kg	0.127	1
CR-ENA2	Vanadium	mg/kg	11.2	1
CR-ENA2	Zinc	mg/kg	35.7	1
CR-ENA3	Aluminum	mg/kg	4890	1
CR-ENA3	Antimony	mg/kg	0.119	1
CR-ENA3	Arsenic	mg/kg	1.58	1
CR-ENA3	Barium	mg/kg	48.2	1
CR-ENA3	Beryllium	mg/kg	0.2	1
CR-ENA3	Cadmium	mg/kg	0.311	1
CR-ENA3	Calcium	mg/kg	3610	1
CR-ENA3	Chromium	mg/kg	8.78	1
CR-ENA3	Cobalt	mg/kg	3.91	1
CR-ENA3	Copper	mg/kg	7.3	1
CR-ENA3	Iron	mg/kg	10900	1
CR-ENA3	Lead	mg/kg	6.99	1
CR-ENA3	Magnesium	mg/kg	3170	1
CR-ENA3	Manganese	mg/kg	141	1
CR-ENA3	Mercury	mg/kg	0.01	1
CR-ENA3	Nickel	mg/kg	9.16	1
CR-ENA3	Potassium	mg/kg	764	1
CR-ENA3	Selenium	mg/kg	0.2	0
CR-ENA3	Silver	mg/kg	0.039	1
CR-ENA3	Sodium	mg/kg	136	1
CR-ENA3	Thallium	mg/kg	0.129	1
CR-ENA3	Vanadium	mg/kg	11.8	1
CR-ENA3	Zinc	mg/kg	49.6	1
CR-ENB1	Aluminum	mg/kg	4210	1
CR-ENB1	Antimony	mg/kg	0.085	1
CR-ENB1	Arsenic	mg/kg	1.5	1
CR-ENB1	Barium	mg/kg	40.5	1
CR-ENB1	Beryllium	mg/kg	0.17	1
CR-ENB1	Cadmium	mg/kg	0.135	1
CR-ENB1	Calcium	mg/kg	2670	1
CR-ENB1	Chromium	mg/kg	7.55	1
CR-ENB1	Cobalt	mg/kg	3.25	1
CR-ENB1	Copper	mg/kg	6	1
CR-ENB1	Iron	mg/kg	9180	1
CR-ENB1	Lead	mg/kg	4.07	1
CR-ENB1	Magnesium	mg/kg	2680	1
CR-ENB1	Manganese	mg/kg	148	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-ENB1	Mercury	mg/kg	0.003	1
CR-ENB1	Nickel	mg/kg	7.47	1
CR-ENB1	Potassium	mg/kg	644	1
CR-ENB1	Selenium	mg/kg	0.2	0
CR-ENB1	Silver	mg/kg	0.025	1
CR-ENB1	Sodium	mg/kg	113	1
CR-ENB1	Thallium	mg/kg	0.069	0
CR-ENB1	Vanadium	mg/kg	10.8	1
CR-ENB1	Zinc	mg/kg	28.4	1
CR-ENB2	Aluminum	mg/kg	5880	1
CR-ENB2	Antimony	mg/kg	0.078	1
CR-ENB2	Arsenic	mg/kg	1.51	1
CR-ENB2	Barium	mg/kg	59.4	1
CR-ENB2	Beryllium	mg/kg	0.21	1
CR-ENB2	Cadmium	mg/kg	0.261	1
CR-ENB2	Calcium	mg/kg	2010	1
CR-ENB2	Chromium	mg/kg	7.64	1
CR-ENB2	Cobalt	mg/kg	3.55	1
CR-ENB2	Copper	mg/kg	7.1	1
CR-ENB2	Iron	mg/kg	10200	1
CR-ENB2	Lead	mg/kg	9.88	1
CR-ENB2	Magnesium	mg/kg	2650	1
CR-ENB2	Manganese	mg/kg	122	1
CR-ENB2	Mercury	mg/kg	0.01	1
CR-ENB2	Nickel	mg/kg	7.59	1
CR-ENB2	Potassium	mg/kg	742	1
CR-ENB2	Selenium	mg/kg	0.2	0
CR-ENB2	Silver	mg/kg	0.027	1
CR-ENB2	Sodium	mg/kg	120	1
CR-ENB2	Thallium	mg/kg	0.11	1
CR-ENB2	Vanadium	mg/kg	10.9	1
CR-ENB2	Zinc	mg/kg	44.1	1
CR-ENB3	Aluminum	mg/kg	7590	1
CR-ENB3	Antimony	mg/kg	0.105	1
CR-ENB3	Arsenic	mg/kg	1.64	1
CR-ENB3	Barium	mg/kg	69.5	1
CR-ENB3	Beryllium	mg/kg	0.27	1
CR-ENB3	Cadmium	mg/kg	0.068	0
CR-ENB3	Calcium	mg/kg	1800	1
CR-ENB3	Chromium	mg/kg	7.79	1
CR-ENB3	Cobalt	mg/kg	4.16	1
CR-ENB3	Copper	mg/kg	8.7	1
CR-ENB3	Iron	mg/kg	11500	1
CR-ENB3	Lead	mg/kg	4.1	1
CR-ENB3	Magnesium	mg/kg	2700	1
CR-ENB3	Manganese	mg/kg	150	1
CR-ENB3	Mercury	mg/kg	0.004	1
CR-ENB3	Nickel	mg/kg	7.66	1
CR-ENB3	Potassium	mg/kg	1020	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-ENB3	Selenium	mg/kg	0.2	0
CR-ENB3	Silver	mg/kg	0.032	1
CR-ENB3	Sodium	mg/kg	164	1
CR-ENB3	Thallium	mg/kg	0.07	1
CR-ENB3	Vanadium	mg/kg	11.6	1
CR-ENB3	Zinc	mg/kg	25.7	1
CR-ENC1-1	Aluminum	mg/kg	3905	1
CR-ENC1-1	Antimony	mg/kg	0.084	1
CR-ENC1-1	Arsenic	mg/kg	1.325	1
CR-ENC1-1	Barium	mg/kg	37.2	1
CR-ENC1-1	Beryllium	mg/kg	0.195	1
CR-ENC1-1	Cadmium	mg/kg	0.104	1
CR-ENC1-1	Calcium	mg/kg	1535	1
CR-ENC1-1	Chromium	mg/kg	6.6	1
CR-ENC1-1	Cobalt	mg/kg	2.985	1
CR-ENC1-1	Copper	mg/kg	5.6	1
CR-ENC1-1	Iron	mg/kg	8500	1
CR-ENC1-1	Lead	mg/kg	3.065	1
CR-ENC1-1	Magnesium	mg/kg	2295	1
CR-ENC1-1	Manganese	mg/kg	132.5	1
CR-ENC1-1	Mercury	mg/kg	0.0025	1
CR-ENC1-1	Nickel	mg/kg	6.31	1
CR-ENC1-1	Potassium	mg/kg	594.5	1
CR-ENC1-1	Selenium	mg/kg	0.2	0
CR-ENC1-1	Silver	mg/kg	0.0235	1
CR-ENC1-1	Sodium	mg/kg	106	1
CR-ENC1-1	Thallium	mg/kg	0.041	0
CR-ENC1-1	Vanadium	mg/kg	9.975	1
CR-ENC1-1	Zinc	mg/kg	23.5	1
CR-ENC2	Aluminum	mg/kg	4130	1
CR-ENC2	Antimony	mg/kg	0.077	1
CR-ENC2	Arsenic	mg/kg	1.26	1
CR-ENC2	Barium	mg/kg	33.5	1
CR-ENC2	Beryllium	mg/kg	0.19	1
CR-ENC2	Cadmium	mg/kg	0.104	1
CR-ENC2	Calcium	mg/kg	1490	1
CR-ENC2	Chromium	mg/kg	6.6	1
CR-ENC2	Cobalt	mg/kg	3.11	1
CR-ENC2	Copper	mg/kg	5.7	1
CR-ENC2	Iron	mg/kg	9440	1
CR-ENC2	Lead	mg/kg	3.01	1
CR-ENC2	Magnesium	mg/kg	2300	1
CR-ENC2	Manganese	mg/kg	136	1
CR-ENC2	Mercury	mg/kg	0.003	1
CR-ENC2	Nickel	mg/kg	6.51	1
CR-ENC2	Potassium	mg/kg	579	1
CR-ENC2	Selenium	mg/kg	0.2	0
CR-ENC2	Silver	mg/kg	0.025	1
CR-ENC2	Sodium	mg/kg	100	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-ENC2	Thallium	mg/kg	0.038	0
CR-ENC2	Vanadium	mg/kg	9.85	1
CR-ENC2	Zinc	mg/kg	23.8	1
CR-ENC3	Aluminum	mg/kg	4050	1
CR-ENC3	Antimony	mg/kg	0.077	1
CR-ENC3	Arsenic	mg/kg	1.39	1
CR-ENC3	Barium	mg/kg	35	1
CR-ENC3	Beryllium	mg/kg	0.18	1
CR-ENC3	Cadmium	mg/kg	0.085	1
CR-ENC3	Calcium	mg/kg	1440	1
CR-ENC3	Chromium	mg/kg	7.3	1
CR-ENC3	Cobalt	mg/kg	3.15	1
CR-ENC3	Copper	mg/kg	5.9	1
CR-ENC3	Iron	mg/kg	9620	1
CR-ENC3	Lead	mg/kg	3.16	1
CR-ENC3	Magnesium	mg/kg	2440	1
CR-ENC3	Manganese	mg/kg	145	1
CR-ENC3	Mercury	mg/kg	0.002	0
CR-ENC3	Nickel	mg/kg	7.02	1
CR-ENC3	Potassium	mg/kg	660	1
CR-ENC3	Selenium	mg/kg	0.2	0
CR-ENC3	Silver	mg/kg	0.021	1
CR-ENC3	Sodium	mg/kg	113	1
CR-ENC3	Thallium	mg/kg	0.04	0
CR-ENC3	Vanadium	mg/kg	10.8	1
CR-ENC3	Zinc	mg/kg	22.5	1
CR-END1	Aluminum	mg/kg	3780	1
CR-END1	Antimony	mg/kg	0.076	1
CR-END1	Arsenic	mg/kg	1.31	1
CR-END1	Barium	mg/kg	37.4	1
CR-END1	Beryllium	mg/kg	0.16	1
CR-END1	Cadmium	mg/kg	0.124	1
CR-END1	Calcium	mg/kg	1400	1
CR-END1	Chromium	mg/kg	7.55	1
CR-END1	Cobalt	mg/kg	3.04	1
CR-END1	Copper	mg/kg	5.4	1
CR-END1	Iron	mg/kg	8760	1
CR-END1	Lead	mg/kg	3.89	1
CR-END1	Magnesium	mg/kg	2200	1
CR-END1	Manganese	mg/kg	117	1
CR-END1	Mercury	mg/kg	0.003	1
CR-END1	Nickel	mg/kg	6.17	1
CR-END1	Potassium	mg/kg	578	1
CR-END1	Selenium	mg/kg	0.2	0
CR-END1	Silver	mg/kg	0.018	1
CR-END1	Sodium	mg/kg	106	1
CR-END1	Thallium	mg/kg	0.065	0
CR-END1	Vanadium	mg/kg	10.3	1
CR-END1	Zinc	mg/kg	25.6	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-END2	Aluminum	mg/kg	4340	1
CR-END2	Antimony	mg/kg	0.097	1
CR-END2	Arsenic	mg/kg	1.72	1
CR-END2	Barium	mg/kg	41.5	1
CR-END2	Beryllium	mg/kg	0.18	1
CR-END2	Cadmium	mg/kg	0.14	1
CR-END2	Calcium	mg/kg	1480	1
CR-END2	Chromium	mg/kg	7.99	1
CR-END2	Cobalt	mg/kg	3.27	1
CR-END2	Copper	mg/kg	6.5	1
CR-END2	Iron	mg/kg	11300	1
CR-END2	Lead	mg/kg	4.38	1
CR-END2	Magnesium	mg/kg	2560	1
CR-END2	Manganese	mg/kg	133	1
CR-END2	Mercury	mg/kg	0.003	1
CR-END2	Nickel	mg/kg	7.38	1
CR-END2	Potassium	mg/kg	686	1
CR-END2	Selenium	mg/kg	0.2	0
CR-END2	Silver	mg/kg	0.029	1
CR-END2	Sodium	mg/kg	104	1
CR-END2	Thallium	mg/kg	0.076	1
CR-END2	Vanadium	mg/kg	11.3	1
CR-END2	Zinc	mg/kg	30.4	1
CR-END3	Aluminum	mg/kg	7160	1
CR-END3	Antimony	mg/kg	0.125	1
CR-END3	Arsenic	mg/kg	2.18	1
CR-END3	Barium	mg/kg	76.5	1
CR-END3	Beryllium	mg/kg	0.28	1
CR-END3	Cadmium	mg/kg	0.235	1
CR-END3	Calcium	mg/kg	2030	1
CR-END3	Chromium	mg/kg	11.4	1
CR-END3	Cobalt	mg/kg	4.97	1
CR-END3	Copper	mg/kg	10.7	1
CR-END3	Iron	mg/kg	13400	1
CR-END3	Lead	mg/kg	7.4	1
CR-END3	Magnesium	mg/kg	4170	1
CR-END3	Manganese	mg/kg	214	1
CR-END3	Mercury	mg/kg	0.011	1
CR-END3	Nickel	mg/kg	11.9	1
CR-END3	Potassium	mg/kg	1280	1
CR-END3	Selenium	mg/kg	0.2	0
CR-END3	Silver	mg/kg	0.044	1
CR-END3	Sodium	mg/kg	170	1
CR-END3	Thallium	mg/kg	0.13	1
CR-END3	Vanadium	mg/kg	15.4	1
CR-END3	Zinc	mg/kg	47.9	1
CR-ENE1	Aluminum	mg/kg	5940	1
CR-ENE1	Antimony	mg/kg	0.109	1
CR-ENE1	Arsenic	mg/kg	1.72	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-ENE1	Barium	mg/kg	60.5	1
CR-ENE1	Beryllium	mg/kg	0.25	1
CR-ENE1	Cadmium	mg/kg	0.171	1
CR-ENE1	Calcium	mg/kg	2100	1
CR-ENE1	Chromium	mg/kg	9.96	1
CR-ENE1	Cobalt	mg/kg	4.42	1
CR-ENE1	Copper	mg/kg	8.7	1
CR-ENE1	Iron	mg/kg	11900	1
CR-ENE1	Lead	mg/kg	5.87	1
CR-ENE1	Magnesium	mg/kg	3270	1
CR-ENE1	Manganese	mg/kg	226	1
CR-ENE1	Mercury	mg/kg	0.005	1
CR-ENE1	Nickel	mg/kg	9.92	1
CR-ENE1	Potassium	mg/kg	974	1
CR-ENE1	Selenium	mg/kg	0.2	0
CR-ENE1	Silver	mg/kg	0.035	1
CR-ENE1	Sodium	mg/kg	139	1
CR-ENE1	Thallium	mg/kg	0.108	1
CR-ENE1	Vanadium	mg/kg	13.4	1
CR-ENE1	Zinc	mg/kg	38.3	1
CR-ENE2	Aluminum	mg/kg	5060	1
CR-ENE2	Antimony	mg/kg	0.094	1
CR-ENE2	Arsenic	mg/kg	1.73	1
CR-ENE2	Barium	mg/kg	50.6	1
CR-ENE2	Beryllium	mg/kg	0.21	1
CR-ENE2	Cadmium	mg/kg	0.252	1
CR-ENE2	Calcium	mg/kg	1630	1
CR-ENE2	Chromium	mg/kg	9.26	1
CR-ENE2	Cobalt	mg/kg	3.64	1
CR-ENE2	Copper	mg/kg	7.3	1
CR-ENE2	Iron	mg/kg	10600	1
CR-ENE2	Lead	mg/kg	8.27	1
CR-ENE2	Magnesium	mg/kg	2700	1
CR-ENE2	Manganese	mg/kg	149	1
CR-ENE2	Mercury	mg/kg	0.008	1
CR-ENE2	Nickel	mg/kg	8.37	1
CR-ENE2	Potassium	mg/kg	793	1
CR-ENE2	Selenium	mg/kg	0.2	0
CR-ENE2	Silver	mg/kg	0.022	1
CR-ENE2	Sodium	mg/kg	120	1
CR-ENE2	Thallium	mg/kg	0.114	1
CR-ENE2	Vanadium	mg/kg	12.5	1
CR-ENE2	Zinc	mg/kg	45	1
CR-ENE3	Aluminum	mg/kg	4350	1
CR-ENE3	Antimony	mg/kg	0.081	1
CR-ENE3	Arsenic	mg/kg	1.41	1
CR-ENE3	Barium	mg/kg	43.9	1
CR-ENE3	Beryllium	mg/kg	0.18	1
CR-ENE3	Cadmium	mg/kg	0.376	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-ENE3	Calcium	mg/kg	1260	1
CR-ENE3	Chromium	mg/kg	6.81	1
CR-ENE3	Cobalt	mg/kg	3.15	1
CR-ENE3	Copper	mg/kg	5.7	1
CR-ENE3	Iron	mg/kg	8730	1
CR-ENE3	Lead	mg/kg	13.1	1
CR-ENE3	Magnesium	mg/kg	2300	1
CR-ENE3	Manganese	mg/kg	118	1
CR-ENE3	Mercury	mg/kg	0.01	1
CR-ENE3	Nickel	mg/kg	6.2	1
CR-ENE3	Potassium	mg/kg	686	1
CR-ENE3	Selenium	mg/kg	0.2	0
CR-ENE3	Silver	mg/kg	0.019	1
CR-ENE3	Sodium	mg/kg	97	1
CR-ENE3	Thallium	mg/kg	0.106	1
CR-ENE3	Vanadium	mg/kg	9.81	1
CR-ENE3	Zinc	mg/kg	56.1	1
CR-EVA2	Aluminum	mg/kg	5600	1
CR-EVA2	Antimony	mg/kg	0.04	0
CR-EVA2	Arsenic	mg/kg	1.45	1
CR-EVA2	Barium	mg/kg	52.6	1
CR-EVA2	Beryllium	mg/kg	0.18	1
CR-EVA2	Cadmium	mg/kg	0.106	1
CR-EVA2	Calcium	mg/kg	2630	1
CR-EVA2	Chromium	mg/kg	9.96	1
CR-EVA2	Cobalt	mg/kg	3.93	1
CR-EVA2	Copper	mg/kg	10.9	1
CR-EVA2	Iron	mg/kg	12100	1
CR-EVA2	Lead	mg/kg	5.33	1
CR-EVA2	Magnesium	mg/kg	3230	1
CR-EVA2	Manganese	mg/kg	167	1
CR-EVA2	Mercury	mg/kg	0.005	1
CR-EVA2	Nickel	mg/kg	10.1	1
CR-EVA2	Potassium	mg/kg	1110	1
CR-EVA2	Selenium	mg/kg	0.2	0
CR-EVA2	Silver	mg/kg	0.077	1
CR-EVA2	Sodium	mg/kg	107	1
CR-EVA2	Thallium	mg/kg	0.07	1
CR-EVA2	Vanadium	mg/kg	15.5	1
CR-EVA2	Zinc	mg/kg	38.8	1
CR-EVA3	Aluminum	mg/kg	4290	1
CR-EVA3	Antimony	mg/kg	0.027	0
CR-EVA3	Arsenic	mg/kg	1.27	1
CR-EVA3	Barium	mg/kg	40.7	1
CR-EVA3	Beryllium	mg/kg	0.12	1
CR-EVA3	Cadmium	mg/kg	0.093	1
CR-EVA3	Calcium	mg/kg	2290	1
CR-EVA3	Chromium	mg/kg	9.28	1
CR-EVA3	Cobalt	mg/kg	3.75	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-EVA3	Copper	mg/kg	8.8	1
CR-EVA3	Iron	mg/kg	12300	1
CR-EVA3	Lead	mg/kg	3.48	1
CR-EVA3	Magnesium	mg/kg	2870	1
CR-EVA3	Manganese	mg/kg	153	1
CR-EVA3	Mercury	mg/kg	0.003	1
CR-EVA3	Nickel	mg/kg	9.16	1
CR-EVA3	Potassium	mg/kg	865	1
CR-EVA3	Selenium	mg/kg	0.2	0
CR-EVA3	Silver	mg/kg	0.056	1
CR-EVA3	Sodium	mg/kg	87	1
CR-EVA3	Thallium	mg/kg	0.053	1
CR-EVA3	Vanadium	mg/kg	14.9	1
CR-EVA3	Zinc	mg/kg	28.8	1
CR-EVC3	Aluminum	mg/kg	8010	1
CR-EVC3	Antimony	mg/kg	0.06	0
CR-EVC3	Arsenic	mg/kg	1.69	1
CR-EVC3	Barium	mg/kg	72.7	1
CR-EVC3	Beryllium	mg/kg	0.25	1
CR-EVC3	Cadmium	mg/kg	0.155	1
CR-EVC3	Calcium	mg/kg	2720	1
CR-EVC3	Chromium	mg/kg	12.8	1
CR-EVC3	Cobalt	mg/kg	4.61	1
CR-EVC3	Copper	mg/kg	11.8	1
CR-EVC3	Iron	mg/kg	13000	1
CR-EVC3	Lead	mg/kg	6.53	1
CR-EVC3	Magnesium	mg/kg	3620	1
CR-EVC3	Manganese	mg/kg	170	1
CR-EVC3	Mercury	mg/kg	0.003	1
CR-EVC3	Nickel	mg/kg	11.2	1
CR-EVC3	Potassium	mg/kg	1600	1
CR-EVC3	Selenium	mg/kg	0.2	0
CR-EVC3	Silver	mg/kg	0.062	1
CR-EVC3	Sodium	mg/kg	117	1
CR-EVC3	Thallium	mg/kg	0.097	1
CR-EVC3	Vanadium	mg/kg	18.7	1
CR-EVC3	Zinc	mg/kg	42.5	1
CR-EVE3	Aluminum	mg/kg	7170	1
CR-EVE3	Antimony	mg/kg	0.233	1
CR-EVE3	Arsenic	mg/kg	2.77	1
CR-EVE3	Barium	mg/kg	93.7	1
CR-EVE3	Beryllium	mg/kg	0.23	1
CR-EVE3	Cadmium	mg/kg	0.791	1
CR-EVE3	Calcium	mg/kg	2770	1
CR-EVE3	Chromium	mg/kg	11.2	1
CR-EVE3	Cobalt	mg/kg	4.73	1
CR-EVE3	Copper	mg/kg	10.7	1
CR-EVE3	Iron	mg/kg	12900	1
CR-EVE3	Lead	mg/kg	7.62	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-EVE3	Magnesium	mg/kg	3630	1
CR-EVE3	Manganese	mg/kg	161	1
CR-EVE3	Mercury	mg/kg	0.007	1
CR-EVE3	Nickel	mg/kg	10.6	1
CR-EVE3	Potassium	mg/kg	1400	1
CR-EVE3	Selenium	mg/kg	0.3	1
CR-EVE3	Silver	mg/kg	0.052	1
CR-EVE3	Sodium	mg/kg	78	1
CR-EVE3	Thallium	mg/kg	0.094	1
CR-EVE3	Vanadium	mg/kg	17.6	1
CR-EVE3	Zinc	mg/kg	53.2	1
CR-HCA1	Aluminum	mg/kg	8780	1
CR-HCA1	Antimony	mg/kg	0.264	1
CR-HCA1	Arsenic	mg/kg	9.01	1
CR-HCA1	Barium	mg/kg	69.4	1
CR-HCA1	Beryllium	mg/kg	0.35	1
CR-HCA1	Cadmium	mg/kg	0.11	1
CR-HCA1	Calcium	mg/kg	17300	1
CR-HCA1	Chromium	mg/kg	9.6	1
CR-HCA1	Cobalt	mg/kg	5.64	1
CR-HCA1	Copper	mg/kg	13.3	1
CR-HCA1	Iron	mg/kg	18600	1
CR-HCA1	Lead	mg/kg	10.1	1
CR-HCA1	Magnesium	mg/kg	7670	1
CR-HCA1	Manganese	mg/kg	349	1
CR-HCA1	Mercury	mg/kg	0.006	1
CR-HCA1	Nickel	mg/kg	8.68	1
CR-HCA1	Potassium	mg/kg	1840	1
CR-HCA1	Selenium	mg/kg	0.2	0
CR-HCA1	Silver	mg/kg	0.065	0
CR-HCA1	Sodium	mg/kg	106	1
CR-HCA1	Thallium	mg/kg	0.126	1
CR-HCA1	Vanadium	mg/kg	17.3	1
CR-HCA1	Zinc	mg/kg	42.3	1
CR-HCA2	Aluminum	mg/kg	9580	1
CR-HCA2	Antimony	mg/kg	0.261	1
CR-HCA2	Arsenic	mg/kg	7.83	1
CR-HCA2	Barium	mg/kg	85.4	1
CR-HCA2	Beryllium	mg/kg	0.4	1
CR-HCA2	Cadmium	mg/kg	0.115	1
CR-HCA2	Calcium	mg/kg	15000	1
CR-HCA2	Chromium	mg/kg	10	1
CR-HCA2	Cobalt	mg/kg	6.66	1
CR-HCA2	Copper	mg/kg	13.7	1
CR-HCA2	Iron	mg/kg	20000	1
CR-HCA2	Lead	mg/kg	8.23	1
CR-HCA2	Magnesium	mg/kg	7680	1
CR-HCA2	Manganese	mg/kg	382	1
CR-HCA2	Mercury	mg/kg	0.002	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-HCA2	Nickel	mg/kg	9.8	1
CR-HCA2	Potassium	mg/kg	2020	1
CR-HCA2	Selenium	mg/kg	0.2	0
CR-HCA2	Silver	mg/kg	0.065	0
CR-HCA2	Sodium	mg/kg	126	1
CR-HCA2	Thallium	mg/kg	0.129	1
CR-HCA2	Vanadium	mg/kg	16.8	1
CR-HCA2	Zinc	mg/kg	43.6	1
CR-HCA3	Aluminum	mg/kg	9050	1
CR-HCA3	Antimony	mg/kg	0.266	1
CR-HCA3	Arsenic	mg/kg	6.95	1
CR-HCA3	Barium	mg/kg	81.3	1
CR-HCA3	Beryllium	mg/kg	0.37	1
CR-HCA3	Cadmium	mg/kg	0.107	1
CR-HCA3	Calcium	mg/kg	16300	1
CR-HCA3	Chromium	mg/kg	9.36	1
CR-HCA3	Cobalt	mg/kg	5.37	1
CR-HCA3	Copper	mg/kg	12.6	1
CR-HCA3	Iron	mg/kg	20300	1
CR-HCA3	Lead	mg/kg	6.75	1
CR-HCA3	Magnesium	mg/kg	7900	1
CR-HCA3	Manganese	mg/kg	356	1
CR-HCA3	Mercury	mg/kg	0.002	1
CR-HCA3	Nickel	mg/kg	8.88	1
CR-HCA3	Potassium	mg/kg	1840	1
CR-HCA3	Selenium	mg/kg	0.2	0
CR-HCA3	Silver	mg/kg	0.059	0
CR-HCA3	Sodium	mg/kg	115	1
CR-HCA3	Thallium	mg/kg	0.108	1
CR-HCA3	Vanadium	mg/kg	14.5	1
CR-HCA3	Zinc	mg/kg	44.2	1
CR-HCB1	Aluminum	mg/kg	8960	1
CR-HCB1	Antimony	mg/kg	0.288	1
CR-HCB1	Arsenic	mg/kg	7.47	1
CR-HCB1	Barium	mg/kg	70.3	1
CR-HCB1	Beryllium	mg/kg	0.36	1
CR-HCB1	Cadmium	mg/kg	0.094	1
CR-HCB1	Calcium	mg/kg	17000	1
CR-HCB1	Chromium	mg/kg	8.01	1
CR-HCB1	Cobalt	mg/kg	5.72	1
CR-HCB1	Copper	mg/kg	12.4	1
CR-HCB1	Iron	mg/kg	19800	1
CR-HCB1	Lead	mg/kg	6.9	1
CR-HCB1	Magnesium	mg/kg	7670	1
CR-HCB1	Manganese	mg/kg	345	1
CR-HCB1	Mercury	mg/kg	0.002	1
CR-HCB1	Nickel	mg/kg	8.6	1
CR-HCB1	Potassium	mg/kg	1880	1
CR-HCB1	Selenium	mg/kg	0.2	0

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-HCB1	Silver	mg/kg	0.063	0
CR-HCB1	Sodium	mg/kg	121	1
CR-HCB1	Thallium	mg/kg	0.093	1
CR-HCB1	Vanadium	mg/kg	13.1	1
CR-HCB1	Zinc	mg/kg	43.2	1
CR-HCB2	Aluminum	mg/kg	9100	1
CR-HCB2	Antimony	mg/kg	0.275	1
CR-HCB2	Arsenic	mg/kg	8.49	1
CR-HCB2	Barium	mg/kg	89.7	1
CR-HCB2	Beryllium	mg/kg	0.36	1
CR-HCB2	Cadmium	mg/kg	0.113	1
CR-HCB2	Calcium	mg/kg	16200	1
CR-HCB2	Chromium	mg/kg	9.64	1
CR-HCB2	Cobalt	mg/kg	7.39	1
CR-HCB2	Copper	mg/kg	13.3	1
CR-HCB2	Iron	mg/kg	19800	1
CR-HCB2	Lead	mg/kg	8.6	1
CR-HCB2	Magnesium	mg/kg	7940	1
CR-HCB2	Manganese	mg/kg	375	1
CR-HCB2	Mercury	mg/kg	0.002	1
CR-HCB2	Nickel	mg/kg	9.58	1
CR-HCB2	Potassium	mg/kg	1950	1
CR-HCB2	Selenium	mg/kg	0.2	0
CR-HCB2	Silver	mg/kg	0.062	0
CR-HCB2	Sodium	mg/kg	105	1
CR-HCB2	Thallium	mg/kg	0.108	1
CR-HCB2	Vanadium	mg/kg	15	1
CR-HCB2	Zinc	mg/kg	43.9	1
CR-HCB3	Aluminum	mg/kg	9630	1
CR-HCB3	Antimony	mg/kg	0.336	1
CR-HCB3	Arsenic	mg/kg	8.42	1
CR-HCB3	Barium	mg/kg	98.4	1
CR-HCB3	Beryllium	mg/kg	0.42	1
CR-HCB3	Cadmium	mg/kg	0.115	1
CR-HCB3	Calcium	mg/kg	18900	1
CR-HCB3	Chromium	mg/kg	9.67	1
CR-HCB3	Cobalt	mg/kg	7.12	1
CR-HCB3	Copper	mg/kg	15.8	1
CR-HCB3	Iron	mg/kg	22300	1
CR-HCB3	Lead	mg/kg	9.45	1
CR-HCB3	Magnesium	mg/kg	8270	1
CR-HCB3	Manganese	mg/kg	364	1
CR-HCB3	Mercury	mg/kg	0.004	1
CR-HCB3	Nickel	mg/kg	10.7	1
CR-HCB3	Potassium	mg/kg	2010	1
CR-HCB3	Selenium	mg/kg	0.2	0
CR-HCB3	Silver	mg/kg	0.065	0
CR-HCB3	Sodium	mg/kg	147	1
CR-HCB3	Thallium	mg/kg	0.125	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-HCB3	Vanadium	mg/kg	16.7	1
CR-HCB3	Zinc	mg/kg	50.7	1
CR-HCC1	Aluminum	mg/kg	8630	1
CR-HCC1	Antimony	mg/kg	0.387	1
CR-HCC1	Arsenic	mg/kg	7.07	1
CR-HCC1	Barium	mg/kg	77.8	1
CR-HCC1	Beryllium	mg/kg	0.33	1
CR-HCC1	Cadmium	mg/kg	0.106	1
CR-HCC1	Calcium	mg/kg	15500	1
CR-HCC1	Chromium	mg/kg	8.38	1
CR-HCC1	Cobalt	mg/kg	5.42	1
CR-HCC1	Copper	mg/kg	12.4	1
CR-HCC1	Iron	mg/kg	19300	1
CR-HCC1	Lead	mg/kg	7.45	1
CR-HCC1	Magnesium	mg/kg	7450	1
CR-HCC1	Manganese	mg/kg	330	1
CR-HCC1	Mercury	mg/kg	0.004	1
CR-HCC1	Nickel	mg/kg	8.91	1
CR-HCC1	Potassium	mg/kg	1760	1
CR-HCC1	Selenium	mg/kg	0.2	0
CR-HCC1	Silver	mg/kg	0.066	0
CR-HCC1	Sodium	mg/kg	139	1
CR-HCC1	Thallium	mg/kg	0.116	1
CR-HCC1	Vanadium	mg/kg	15.2	1
CR-HCC1	Zinc	mg/kg	40.2	1
CR-HCC2	Aluminum	mg/kg	10400	1
CR-HCC2	Antimony	mg/kg	0.252	1
CR-HCC2	Arsenic	mg/kg	7.67	1
CR-HCC2	Barium	mg/kg	98.8	1
CR-HCC2	Beryllium	mg/kg	0.42	1
CR-HCC2	Cadmium	mg/kg	0.118	1
CR-HCC2	Calcium	mg/kg	16600	1
CR-HCC2	Chromium	mg/kg	10.6	1
CR-HCC2	Cobalt	mg/kg	7.22	1
CR-HCC2	Copper	mg/kg	15.6	1
CR-HCC2	Iron	mg/kg	23300	1
CR-HCC2	Lead	mg/kg	9.88	1
CR-HCC2	Magnesium	mg/kg	8200	1
CR-HCC2	Manganese	mg/kg	418	1
CR-HCC2	Mercury	mg/kg	0.003	1
CR-HCC2	Nickel	mg/kg	10.7	1
CR-HCC2	Potassium	mg/kg	2180	1
CR-HCC2	Selenium	mg/kg	0.2	0
CR-HCC2	Silver	mg/kg	0.062	0
CR-HCC2	Sodium	mg/kg	162	1
CR-HCC2	Thallium	mg/kg	0.125	1
CR-HCC2	Vanadium	mg/kg	16.5	1
CR-HCC2	Zinc	mg/kg	51.7	1
CR-HCC3	Aluminum	mg/kg	27000	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-HCC3	Antimony	mg/kg	0.34	1
CR-HCC3	Arsenic	mg/kg	8.16	1
CR-HCC3	Barium	mg/kg	219	1
CR-HCC3	Beryllium	mg/kg	1.06	1
CR-HCC3	Cadmium	mg/kg	0.287	1
CR-HCC3	Calcium	mg/kg	8810	1
CR-HCC3	Chromium	mg/kg	42	1
CR-HCC3	Cobalt	mg/kg	17.2	1
CR-HCC3	Copper	mg/kg	42.5	1
CR-HCC3	Iron	mg/kg	44200	1
CR-HCC3	Lead	mg/kg	19.7	1
CR-HCC3	Magnesium	mg/kg	16100	1
CR-HCC3	Manganese	mg/kg	601	1
CR-HCC3	Mercury	mg/kg	0.011	1
CR-HCC3	Nickel	mg/kg	44.2	1
CR-HCC3	Potassium	mg/kg	4600	1
CR-HCC3	Selenium	mg/kg	0.2	0
CR-HCC3	Silver	mg/kg	0.105	1
CR-HCC3	Sodium	mg/kg	302	1
CR-HCC3	Thallium	mg/kg	0.236	1
CR-HCC3	Vanadium	mg/kg	47.4	1
CR-HCC3	Zinc	mg/kg	117	1
CR-HCD1	Aluminum	mg/kg	9660	1
CR-HCD1	Antimony	mg/kg	0.296	1
CR-HCD1	Arsenic	mg/kg	7.55	1
CR-HCD1	Barium	mg/kg	94.9	1
CR-HCD1	Beryllium	mg/kg	0.35	1
CR-HCD1	Cadmium	mg/kg	0.105	1
CR-HCD1	Calcium	mg/kg	19100	1
CR-HCD1	Chromium	mg/kg	8.7	1
CR-HCD1	Cobalt	mg/kg	6.11	1
CR-HCD1	Copper	mg/kg	13.7	1
CR-HCD1	Iron	mg/kg	20400	1
CR-HCD1	Lead	mg/kg	7.74	1
CR-HCD1	Magnesium	mg/kg	7750	1
CR-HCD1	Manganese	mg/kg	358	1
CR-HCD1	Mercury	mg/kg	0.003	1
CR-HCD1	Nickel	mg/kg	9.3	1
CR-HCD1	Potassium	mg/kg	2040	1
CR-HCD1	Selenium	mg/kg	0.2	0
CR-HCD1	Silver	mg/kg	0.066	0
CR-HCD1	Sodium	mg/kg	141	1
CR-HCD1	Thallium	mg/kg	0.11	1
CR-HCD1	Vanadium	mg/kg	14.6	1
CR-HCD1	Zinc	mg/kg	45	1
CR-HCD2	Aluminum	mg/kg	9510	1
CR-HCD2	Antimony	mg/kg	0.297	1
CR-HCD2	Arsenic	mg/kg	7	1
CR-HCD2	Barium	mg/kg	87.2	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-HCD2	Beryllium	mg/kg	0.37	1
CR-HCD2	Cadmium	mg/kg	0.107	1
CR-HCD2	Calcium	mg/kg	18800	1
CR-HCD2	Chromium	mg/kg	9.48	1
CR-HCD2	Cobalt	mg/kg	5.87	1
CR-HCD2	Copper	mg/kg	13.1	1
CR-HCD2	Iron	mg/kg	21300	1
CR-HCD2	Lead	mg/kg	7.4	1
CR-HCD2	Magnesium	mg/kg	8070	1
CR-HCD2	Manganese	mg/kg	354	1
CR-HCD2	Mercury	mg/kg	0.004	1
CR-HCD2	Nickel	mg/kg	9.94	1
CR-HCD2	Potassium	mg/kg	1980	1
CR-HCD2	Selenium	mg/kg	0.2	0
CR-HCD2	Silver	mg/kg	0.056	0
CR-HCD2	Sodium	mg/kg	158	1
CR-HCD2	Thallium	mg/kg	0.125	1
CR-HCD2	Vanadium	mg/kg	15.2	1
CR-HCD2	Zinc	mg/kg	45.5	1
CR-HCD3	Aluminum	mg/kg	9120	1
CR-HCD3	Antimony	mg/kg	0.304	1
CR-HCD3	Arsenic	mg/kg	7.54	1
CR-HCD3	Barium	mg/kg	81.9	1
CR-HCD3	Beryllium	mg/kg	0.36	1
CR-HCD3	Cadmium	mg/kg	0.141	1
CR-HCD3	Calcium	mg/kg	15700	1
CR-HCD3	Chromium	mg/kg	9.46	1
CR-HCD3	Cobalt	mg/kg	5.97	1
CR-HCD3	Copper	mg/kg	13.9	1
CR-HCD3	Iron	mg/kg	19600	1
CR-HCD3	Lead	mg/kg	8.07	1
CR-HCD3	Magnesium	mg/kg	7330	1
CR-HCD3	Manganese	mg/kg	398	1
CR-HCD3	Mercury	mg/kg	0.003	1
CR-HCD3	Nickel	mg/kg	10.3	1
CR-HCD3	Potassium	mg/kg	1800	1
CR-HCD3	Selenium	mg/kg	0.2	0
CR-HCD3	Silver	mg/kg	0.068	0
CR-HCD3	Sodium	mg/kg	126	1
CR-HCD3	Thallium	mg/kg	0.135	1
CR-HCD3	Vanadium	mg/kg	16.2	1
CR-HCD3	Zinc	mg/kg	46.4	1
CR-HCE1	Aluminum	mg/kg	8490	1
CR-HCE1	Antimony	mg/kg	0.268	1
CR-HCE1	Arsenic	mg/kg	7.29	1
CR-HCE1	Barium	mg/kg	86.8	1
CR-HCE1	Beryllium	mg/kg	0.35	1
CR-HCE1	Cadmium	mg/kg	0.12	1
CR-HCE1	Calcium	mg/kg	16800	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-HCE1	Chromium	mg/kg	9.57	1
CR-HCE1	Cobalt	mg/kg	6.93	1
CR-HCE1	Copper	mg/kg	15	1
CR-HCE1	Iron	mg/kg	19200	1
CR-HCE1	Lead	mg/kg	8.96	1
CR-HCE1	Magnesium	mg/kg	7450	1
CR-HCE1	Manganese	mg/kg	369	1
CR-HCE1	Mercury	mg/kg	0.007	1
CR-HCE1	Nickel	mg/kg	9.33	1
CR-HCE1	Potassium	mg/kg	1790	1
CR-HCE1	Selenium	mg/kg	0.2	0
CR-HCE1	Silver	mg/kg	0.071	0
CR-HCE1	Sodium	mg/kg	126	1
CR-HCE1	Thallium	mg/kg	0.117	1
CR-HCE1	Vanadium	mg/kg	13.8	1
CR-HCE1	Zinc	mg/kg	45.8	1
CR-HCE2	Aluminum	mg/kg	10600	1
CR-HCE2	Antimony	mg/kg	0.273	1
CR-HCE2	Arsenic	mg/kg	8.64	1
CR-HCE2	Barium	mg/kg	106	1
CR-HCE2	Beryllium	mg/kg	0.42	1
CR-HCE2	Cadmium	mg/kg	0.128	1
CR-HCE2	Calcium	mg/kg	17800	1
CR-HCE2	Chromium	mg/kg	11	1
CR-HCE2	Cobalt	mg/kg	7.55	1
CR-HCE2	Copper	mg/kg	18.5	1
CR-HCE2	Iron	mg/kg	22600	1
CR-HCE2	Lead	mg/kg	10.8	1
CR-HCE2	Magnesium	mg/kg	7960	1
CR-HCE2	Manganese	mg/kg	408	1
CR-HCE2	Mercury	mg/kg	0.006	1
CR-HCE2	Nickel	mg/kg	11.1	1
CR-HCE2	Potassium	mg/kg	2140	1
CR-HCE2	Selenium	mg/kg	0.2	0
CR-HCE2	Silver	mg/kg	0.072	0
CR-HCE2	Sodium	mg/kg	191	1
CR-HCE2	Thallium	mg/kg	0.144	1
CR-HCE2	Vanadium	mg/kg	18.2	1
CR-HCE2	Zinc	mg/kg	52.5	1
CR-HCE3	Aluminum	mg/kg	9960	1
CR-HCE3	Antimony	mg/kg	0.261	1
CR-HCE3	Arsenic	mg/kg	8.88	1
CR-HCE3	Barium	mg/kg	100	1
CR-HCE3	Beryllium	mg/kg	0.4	1
CR-HCE3	Cadmium	mg/kg	0.153	1
CR-HCE3	Calcium	mg/kg	18500	1
CR-HCE3	Chromium	mg/kg	9.31	1
CR-HCE3	Cobalt	mg/kg	8.22	1
CR-HCE3	Copper	mg/kg	17.2	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-HCE3	Iron	mg/kg	23000	1
CR-HCE3	Lead	mg/kg	10.6	1
CR-HCE3	Magnesium	mg/kg	7720	1
CR-HCE3	Manganese	mg/kg	439	1
CR-HCE3	Mercury	mg/kg	0.005	1
CR-HCE3	Nickel	mg/kg	10.6	1
CR-HCE3	Potassium	mg/kg	2200	1
CR-HCE3	Selenium	mg/kg	0.2	0
CR-HCE3	Silver	mg/kg	0.072	0
CR-HCE3	Sodium	mg/kg	149	1
CR-HCE3	Thallium	mg/kg	0.128	1
CR-HCE3	Vanadium	mg/kg	18.6	1
CR-HCE3	Zinc	mg/kg	52.1	1
CR-HTB2	Aluminum	mg/kg	14100	1
CR-HTB2	Antimony	mg/kg	0.174	1
CR-HTB2	Arsenic	mg/kg	2.47	1
CR-HTB2	Barium	mg/kg	142	1
CR-HTB2	Beryllium	mg/kg	0.46	1
CR-HTB2	Cadmium	mg/kg	0.158	1
CR-HTB2	Calcium	mg/kg	2590	1
CR-HTB2	Chromium	mg/kg	14.3	1
CR-HTB2	Cobalt	mg/kg	6.17	1
CR-HTB2	Copper	mg/kg	15.2	1
CR-HTB2	Iron	mg/kg	15900	1
CR-HTB2	Lead	mg/kg	9.73	1
CR-HTB2	Magnesium	mg/kg	3710	1
CR-HTB2	Manganese	mg/kg	185	1
CR-HTB2	Mercury	mg/kg	0.011	1
CR-HTB2	Nickel	mg/kg	13.3	1
CR-HTB2	Potassium	mg/kg	2200	1
CR-HTB2	Selenium	mg/kg	0.2	0
CR-HTB2	Silver	mg/kg	0.078	1
CR-HTB2	Sodium	mg/kg	144	1
CR-HTB2	Thallium	mg/kg	0.143	1
CR-HTB2	Vanadium	mg/kg	19.4	1
CR-HTB2	Zinc	mg/kg	48.2	1
CR-HTB3	Aluminum	mg/kg	13100	1
CR-HTB3	Antimony	mg/kg	0.255	1
CR-HTB3	Arsenic	mg/kg	3.62	1
CR-HTB3	Barium	mg/kg	136	1
CR-HTB3	Beryllium	mg/kg	0.5	1
CR-HTB3	Cadmium	mg/kg	0.16	1
CR-HTB3	Calcium	mg/kg	3450	1
CR-HTB3	Chromium	mg/kg	22.8	1
CR-HTB3	Cobalt	mg/kg	9.3	1
CR-HTB3	Copper	mg/kg	22.4	1
CR-HTB3	Iron	mg/kg	21900	1
CR-HTB3	Lead	mg/kg	11.3	1
CR-HTB3	Magnesium	mg/kg	6050	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-HTB3	Manganese	mg/kg	321	1
CR-HTB3	Mercury	mg/kg	0.011	1
CR-HTB3	Nickel	mg/kg	23	1
CR-HTB3	Potassium	mg/kg	2820	1
CR-HTB3	Selenium	mg/kg	0.2	0
CR-HTB3	Silver	mg/kg	0.062	0
CR-HTB3	Sodium	mg/kg	118	1
CR-HTB3	Thallium	mg/kg	0.156	1
CR-HTB3	Vanadium	mg/kg	26.8	1
CR-HTB3	Zinc	mg/kg	59.6	1
CR-HTC1	Aluminum	mg/kg	10000	1
CR-HTC1	Antimony	mg/kg	0.202	1
CR-HTC1	Arsenic	mg/kg	3.5	1
CR-HTC1	Barium	mg/kg	115	1
CR-HTC1	Beryllium	mg/kg	0.38	1
CR-HTC1	Cadmium	mg/kg	0.34	1
CR-HTC1	Calcium	mg/kg	3200	1
CR-HTC1	Chromium	mg/kg	18.5	1
CR-HTC1	Cobalt	mg/kg	8.57	1
CR-HTC1	Copper	mg/kg	18.5	1
CR-HTC1	Iron	mg/kg	18700	1
CR-HTC1	Lead	mg/kg	14.1	1
CR-HTC1	Magnesium	mg/kg	5080	1
CR-HTC1	Manganese	mg/kg	349	1
CR-HTC1	Mercury	mg/kg	0.015	1
CR-HTC1	Nickel	mg/kg	20.1	1
CR-HTC1	Potassium	mg/kg	1930	1
CR-HTC1	Selenium	mg/kg	0.2	0
CR-HTC1	Silver	mg/kg	0.081	1
CR-HTC1	Sodium	mg/kg	114	1
CR-HTC1	Thallium	mg/kg	0.258	1
CR-HTC1	Vanadium	mg/kg	22.9	1
CR-HTC1	Zinc	mg/kg	74	1
CR-HTD1	Aluminum	mg/kg	12100	1
CR-HTD1	Antimony	mg/kg	0.194	1
CR-HTD1	Arsenic	mg/kg	2.79	1
CR-HTD1	Barium	mg/kg	129	1
CR-HTD1	Beryllium	mg/kg	0.43	1
CR-HTD1	Cadmium	mg/kg	0.271	1
CR-HTD1	Calcium	mg/kg	3220	1
CR-HTD1	Chromium	mg/kg	17.9	1
CR-HTD1	Cobalt	mg/kg	7.71	1
CR-HTD1	Copper	mg/kg	18.9	1
CR-HTD1	Iron	mg/kg	18100	1
CR-HTD1	Lead	mg/kg	12	1
CR-HTD1	Magnesium	mg/kg	5010	1
CR-HTD1	Manganese	mg/kg	280	1
CR-HTD1	Mercury	mg/kg	0.014	1
CR-HTD1	Nickel	mg/kg	18.4	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-HTD1	Potassium	mg/kg	2500	1
CR-HTD1	Selenium	mg/kg	0.2	0
CR-HTD1	Silver	mg/kg	0.085	1
CR-HTD1	Sodium	mg/kg	124	1
CR-HTD1	Thallium	mg/kg	0.184	1
CR-HTD1	Vanadium	mg/kg	22.1	1
CR-HTD1	Zinc	mg/kg	68.4	1
CR-HTD2	Aluminum	mg/kg	12700	1
CR-HTD2	Antimony	mg/kg	0.215	1
CR-HTD2	Arsenic	mg/kg	3.29	1
CR-HTD2	Barium	mg/kg	145	1
CR-HTD2	Beryllium	mg/kg	0.49	1
CR-HTD2	Cadmium	mg/kg	0.19	1
CR-HTD2	Calcium	mg/kg	3280	1
CR-HTD2	Chromium	mg/kg	21.2	1
CR-HTD2	Cobalt	mg/kg	8.23	1
CR-HTD2	Copper	mg/kg	22.6	1
CR-HTD2	Iron	mg/kg	20800	1
CR-HTD2	Lead	mg/kg	10.8	1
CR-HTD2	Magnesium	mg/kg	5430	1
CR-HTD2	Manganese	mg/kg	333	1
CR-HTD2	Mercury	mg/kg	0.011	1
CR-HTD2	Nickel	mg/kg	21.6	1
CR-HTD2	Potassium	mg/kg	3200	1
CR-HTD2	Selenium	mg/kg	0.2	0
CR-HTD2	Silver	mg/kg	0.092	1
CR-HTD2	Sodium	mg/kg	115	1
CR-HTD2	Thallium	mg/kg	0.151	1
CR-HTD2	Vanadium	mg/kg	26.5	1
CR-HTD2	Zinc	mg/kg	61.7	1
CR-HTD3-1	Aluminum	mg/kg	12800	1
CR-HTD3-1	Antimony	mg/kg	0.235	1
CR-HTD3-1	Arsenic	mg/kg	3.6	1
CR-HTD3-1	Barium	mg/kg	128.5	1
CR-HTD3-1	Beryllium	mg/kg	0.47	1
CR-HTD3-1	Cadmium	mg/kg	0.1415	1
CR-HTD3-1	Calcium	mg/kg	3540	1
CR-HTD3-1	Chromium	mg/kg	20.9	1
CR-HTD3-1	Cobalt	mg/kg	7.93	1
CR-HTD3-1	Copper	mg/kg	22.55	1
CR-HTD3-1	Iron	mg/kg	21300	1
CR-HTD3-1	Lead	mg/kg	8.455	1
CR-HTD3-1	Magnesium	mg/kg	5530	1
CR-HTD3-1	Manganese	mg/kg	342.5	1
CR-HTD3-1	Mercury	mg/kg	0.01	1
CR-HTD3-1	Nickel	mg/kg	22.35	1
CR-HTD3-1	Potassium	mg/kg	2880	1
CR-HTD3-1	Selenium	mg/kg	0.2	0
CR-HTD3-1	Silver	mg/kg	0.08	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-HTD3-1	Sodium	mg/kg	126.5	1
CR-HTD3-1	Thallium	mg/kg	0.132	1
CR-HTD3-1	Vanadium	mg/kg	25.3	1
CR-HTD3-1	Zinc	mg/kg	56.55	1
CR-HTE1	Aluminum	mg/kg	8750	1
CR-HTE1	Antimony	mg/kg	0.273	1
CR-HTE1	Arsenic	mg/kg	3.82	1
CR-HTE1	Barium	mg/kg	95.7	1
CR-HTE1	Beryllium	mg/kg	0.3	1
CR-HTE1	Cadmium	mg/kg	0.163	1
CR-HTE1	Calcium	mg/kg	13500	1
CR-HTE1	Chromium	mg/kg	18.1	1
CR-HTE1	Cobalt	mg/kg	7.33	1
CR-HTE1	Copper	mg/kg	16.8	1
CR-HTE1	Iron	mg/kg	17800	1
CR-HTE1	Lead	mg/kg	7.52	1
CR-HTE1	Magnesium	mg/kg	5740	1
CR-HTE1	Manganese	mg/kg	313	1
CR-HTE1	Mercury	mg/kg	0.005	1
CR-HTE1	Nickel	mg/kg	19.5	1
CR-HTE1	Potassium	mg/kg	1500	1
CR-HTE1	Selenium	mg/kg	0.2	0
CR-HTE1	Silver	mg/kg	0.085	1
CR-HTE1	Sodium	mg/kg	117	1
CR-HTE1	Thallium	mg/kg	0.101	1
CR-HTE1	Vanadium	mg/kg	20.4	1
CR-HTE1	Zinc	mg/kg	50.5	1
CR-HTE2	Aluminum	mg/kg	7960	1
CR-HTE2	Antimony	mg/kg	0.222	1
CR-HTE2	Arsenic	mg/kg	4.1	1
CR-HTE2	Barium	mg/kg	93.3	1
CR-HTE2	Beryllium	mg/kg	0.29	1
CR-HTE2	Cadmium	mg/kg	0.165	1
CR-HTE2	Calcium	mg/kg	20700	1
CR-HTE2	Chromium	mg/kg	16.7	1
CR-HTE2	Cobalt	mg/kg	6.78	1
CR-HTE2	Copper	mg/kg	16.8	1
CR-HTE2	Iron	mg/kg	16300	1
CR-HTE2	Lead	mg/kg	6.68	1
CR-HTE2	Magnesium	mg/kg	6250	1
CR-HTE2	Manganese	mg/kg	286	1
CR-HTE2	Mercury	mg/kg	0.007	1
CR-HTE2	Nickel	mg/kg	18	1
CR-HTE2	Potassium	mg/kg	1430	1
CR-HTE2	Selenium	mg/kg	0.2	0
CR-HTE2	Silver	mg/kg	0.107	1
CR-HTE2	Sodium	mg/kg	121	1
CR-HTE2	Thallium	mg/kg	0.091	1
CR-HTE2	Vanadium	mg/kg	20.7	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-HTE2	Zinc	mg/kg	47	1
CR-HTE3	Aluminum	mg/kg	11500	1
CR-HTE3	Antimony	mg/kg	0.294	1
CR-HTE3	Arsenic	mg/kg	4.73	1
CR-HTE3	Barium	mg/kg	165	1
CR-HTE3	Beryllium	mg/kg	0.43	1
CR-HTE3	Cadmium	mg/kg	0.219	1
CR-HTE3	Calcium	mg/kg	29400	1
CR-HTE3	Chromium	mg/kg	22.6	1
CR-HTE3	Cobalt	mg/kg	9.07	1
CR-HTE3	Copper	mg/kg	22.5	1
CR-HTE3	Iron	mg/kg	21100	1
CR-HTE3	Lead	mg/kg	9.07	1
CR-HTE3	Magnesium	mg/kg	9170	1
CR-HTE3	Manganese	mg/kg	448	1
CR-HTE3	Mercury	mg/kg	0.008	1
CR-HTE3	Nickel	mg/kg	25	1
CR-HTE3	Potassium	mg/kg	2240	1
CR-HTE3	Selenium	mg/kg	0.2	0
CR-HTE3	Silver	mg/kg	0.13	1
CR-HTE3	Sodium	mg/kg	191	1
CR-HTE3	Thallium	mg/kg	0.132	1
CR-HTE3	Vanadium	mg/kg	27.4	1
CR-HTE3	Zinc	mg/kg	62.9	1
CR-JBA1	Aluminum	mg/kg	6370	1
CR-JBA1	Antimony	mg/kg	0.261	1
CR-JBA1	Arsenic	mg/kg	6.02	1
CR-JBA1	Barium	mg/kg	45.8	1
CR-JBA1	Beryllium	mg/kg	0.27	1
CR-JBA1	Cadmium	mg/kg	0.071	0
CR-JBA1	Calcium	mg/kg	8990	1
CR-JBA1	Chromium	mg/kg	8.48	1
CR-JBA1	Cobalt	mg/kg	3.46	1
CR-JBA1	Copper	mg/kg	7.2	1
CR-JBA1	Iron	mg/kg	14400	1
CR-JBA1	Lead	mg/kg	6.46	1
CR-JBA1	Magnesium	mg/kg	5260	1
CR-JBA1	Manganese	mg/kg	242	1
CR-JBA1	Mercury	mg/kg	0.002	1
CR-JBA1	Nickel	mg/kg	7.25	1
CR-JBA1	Potassium	mg/kg	1100	1
CR-JBA1	Selenium	mg/kg	0.2	0
CR-JBA1	Silver	mg/kg	0.044	1
CR-JBA1	Sodium	mg/kg	94	1
CR-JBA1	Thallium	mg/kg	0.078	0
CR-JBA1	Vanadium	mg/kg	11.5	1
CR-JBA1	Zinc	mg/kg	28.7	1
CR-JBA2	Aluminum	mg/kg	6600	1
CR-JBA2	Antimony	mg/kg	0.238	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-JBA2	Arsenic	mg/kg	5.93	1
CR-JBA2	Barium	mg/kg	45.7	1
CR-JBA2	Beryllium	mg/kg	0.27	1
CR-JBA2	Cadmium	mg/kg	0.083	0
CR-JBA2	Calcium	mg/kg	8470	1
CR-JBA2	Chromium	mg/kg	7.76	1
CR-JBA2	Cobalt	mg/kg	3.85	1
CR-JBA2	Copper	mg/kg	8.1	1
CR-JBA2	Iron	mg/kg	13900	1
CR-JBA2	Lead	mg/kg	5.29	1
CR-JBA2	Magnesium	mg/kg	5870	1
CR-JBA2	Manganese	mg/kg	224	1
CR-JBA2	Mercury	mg/kg	0.002	0
CR-JBA2	Nickel	mg/kg	8.09	1
CR-JBA2	Potassium	mg/kg	1170	1
CR-JBA2	Selenium	mg/kg	0.2	0
CR-JBA2	Silver	mg/kg	0.051	1
CR-JBA2	Sodium	mg/kg	96	1
CR-JBA2	Thallium	mg/kg	0.086	0
CR-JBA2	Vanadium	mg/kg	11.2	1
CR-JBA2	Zinc	mg/kg	31.4	1
CR-JBA3	Aluminum	mg/kg	7180	1
CR-JBA3	Antimony	mg/kg	0.197	1
CR-JBA3	Arsenic	mg/kg	5.83	1
CR-JBA3	Barium	mg/kg	47.7	1
CR-JBA3	Beryllium	mg/kg	0.29	1
CR-JBA3	Cadmium	mg/kg	0.157	1
CR-JBA3	Calcium	mg/kg	7440	1
CR-JBA3	Chromium	mg/kg	9.9	1
CR-JBA3	Cobalt	mg/kg	3.84	1
CR-JBA3	Copper	mg/kg	8.3	1
CR-JBA3	Iron	mg/kg	14900	1
CR-JBA3	Lead	mg/kg	5.51	1
CR-JBA3	Magnesium	mg/kg	5690	1
CR-JBA3	Manganese	mg/kg	222	1
CR-JBA3	Mercury	mg/kg	0.003	1
CR-JBA3	Nickel	mg/kg	8.07	1
CR-JBA3	Potassium	mg/kg	1180	1
CR-JBA3	Selenium	mg/kg	0.2	0
CR-JBA3	Silver	mg/kg	0.038	1
CR-JBA3	Sodium	mg/kg	105	1
CR-JBA3	Thallium	mg/kg	0.111	1
CR-JBA3	Vanadium	mg/kg	13.4	1
CR-JBA3	Zinc	mg/kg	40	1
CR-JBB1	Aluminum	mg/kg	6570	1
CR-JBB1	Antimony	mg/kg	0.218	1
CR-JBB1	Arsenic	mg/kg	5.98	1
CR-JBB1	Barium	mg/kg	52.9	1
CR-JBB1	Beryllium	mg/kg	0.27	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-JBB1	Cadmium	mg/kg	0.068	0
CR-JBB1	Calcium	mg/kg	7310	1
CR-JBB1	Chromium	mg/kg	7.7	1
CR-JBB1	Cobalt	mg/kg	3.69	1
CR-JBB1	Copper	mg/kg	7.9	1
CR-JBB1	Iron	mg/kg	13400	1
CR-JBB1	Lead	mg/kg	5.34	1
CR-JBB1	Magnesium	mg/kg	5410	1
CR-JBB1	Manganese	mg/kg	239	1
CR-JBB1	Mercury	mg/kg	0.003	1
CR-JBB1	Nickel	mg/kg	7.27	1
CR-JBB1	Potassium	mg/kg	1130	1
CR-JBB1	Selenium	mg/kg	0.2	0
CR-JBB1	Silver	mg/kg	0.035	1
CR-JBB1	Sodium	mg/kg	87	1
CR-JBB1	Thallium	mg/kg	0.071	0
CR-JBB1	Vanadium	mg/kg	10.2	1
CR-JBB1	Zinc	mg/kg	29.6	1
CR-JBB2	Aluminum	mg/kg	7020	1
CR-JBB2	Antimony	mg/kg	0.186	1
CR-JBB2	Arsenic	mg/kg	8.96	1
CR-JBB2	Barium	mg/kg	52.4	1
CR-JBB2	Beryllium	mg/kg	0.3	1
CR-JBB2	Cadmium	mg/kg	0.108	1
CR-JBB2	Calcium	mg/kg	7400	1
CR-JBB2	Chromium	mg/kg	7.63	1
CR-JBB2	Cobalt	mg/kg	3.48	1
CR-JBB2	Copper	mg/kg	8.2	1
CR-JBB2	Iron	mg/kg	14400	1
CR-JBB2	Lead	mg/kg	5.8	1
CR-JBB2	Magnesium	mg/kg	5760	1
CR-JBB2	Manganese	mg/kg	259	1
CR-JBB2	Mercury	mg/kg	0.002	1
CR-JBB2	Nickel	mg/kg	7.25	1
CR-JBB2	Potassium	mg/kg	1310	1
CR-JBB2	Selenium	mg/kg	0.2	0
CR-JBB2	Silver	mg/kg	0.036	1
CR-JBB2	Sodium	mg/kg	77	1
CR-JBB2	Thallium	mg/kg	0.091	0
CR-JBB2	Vanadium	mg/kg	11.1	1
CR-JBB2	Zinc	mg/kg	33.8	1
CR-JBB3	Aluminum	mg/kg	7110	1
CR-JBB3	Antimony	mg/kg	0.233	1
CR-JBB3	Arsenic	mg/kg	6.45	1
CR-JBB3	Barium	mg/kg	57.8	1
CR-JBB3	Beryllium	mg/kg	0.3	1
CR-JBB3	Cadmium	mg/kg	0.115	1
CR-JBB3	Calcium	mg/kg	7620	1
CR-JBB3	Chromium	mg/kg	8.01	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-JBB3	Cobalt	mg/kg	3.72	1
CR-JBB3	Copper	mg/kg	8.8	1
CR-JBB3	Iron	mg/kg	14300	1
CR-JBB3	Lead	mg/kg	5.51	1
CR-JBB3	Magnesium	mg/kg	5400	1
CR-JBB3	Manganese	mg/kg	240	1
CR-JBB3	Mercury	mg/kg	0.002	1
CR-JBB3	Nickel	mg/kg	7.22	1
CR-JBB3	Potassium	mg/kg	1150	1
CR-JBB3	Selenium	mg/kg	0.2	0
CR-JBB3	Silver	mg/kg	0.036	1
CR-JBB3	Sodium	mg/kg	78	1
CR-JBB3	Thallium	mg/kg	0.101	1
CR-JBB3	Vanadium	mg/kg	10.9	1
CR-JBB3	Zinc	mg/kg	35.5	1
CR-JBC1	Aluminum	mg/kg	7350	1
CR-JBC1	Antimony	mg/kg	0.192	1
CR-JBC1	Arsenic	mg/kg	6.45	1
CR-JBC1	Barium	mg/kg	46.8	1
CR-JBC1	Beryllium	mg/kg	0.29	1
CR-JBC1	Cadmium	mg/kg	0.066	0
CR-JBC1	Calcium	mg/kg	9880	1
CR-JBC1	Chromium	mg/kg	7.52	1
CR-JBC1	Cobalt	mg/kg	4.01	1
CR-JBC1	Copper	mg/kg	7.9	1
CR-JBC1	Iron	mg/kg	15300	1
CR-JBC1	Lead	mg/kg	5.29	1
CR-JBC1	Magnesium	mg/kg	5900	1
CR-JBC1	Manganese	mg/kg	260	1
CR-JBC1	Mercury	mg/kg	0.003	1
CR-JBC1	Nickel	mg/kg	7.34	1
CR-JBC1	Potassium	mg/kg	1400	1
CR-JBC1	Selenium	mg/kg	0.2	0
CR-JBC1	Silver	mg/kg	0.039	1
CR-JBC1	Sodium	mg/kg	96	1
CR-JBC1	Thallium	mg/kg	0.072	0
CR-JBC1	Vanadium	mg/kg	10.2	1
CR-JBC1	Zinc	mg/kg	30.4	1
CR-JBC2	Aluminum	mg/kg	7410	1
CR-JBC2	Antimony	mg/kg	0.189	1
CR-JBC2	Arsenic	mg/kg	6.79	1
CR-JBC2	Barium	mg/kg	56.8	1
CR-JBC2	Beryllium	mg/kg	0.3	1
CR-JBC2	Cadmium	mg/kg	0.077	0
CR-JBC2	Calcium	mg/kg	10900	1
CR-JBC2	Chromium	mg/kg	10.1	1
CR-JBC2	Cobalt	mg/kg	4.42	1
CR-JBC2	Copper	mg/kg	9.5	1
CR-JBC2	Iron	mg/kg	14600	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-JBC2	Lead	mg/kg	5.77	1
CR-JBC2	Magnesium	mg/kg	5900	1
CR-JBC2	Manganese	mg/kg	269	1
CR-JBC2	Mercury	mg/kg	0.003	1
CR-JBC2	Nickel	mg/kg	8.63	1
CR-JBC2	Potassium	mg/kg	1540	1
CR-JBC2	Selenium	mg/kg	0.2	0
CR-JBC2	Silver	mg/kg	0.046	1
CR-JBC2	Sodium	mg/kg	113	1
CR-JBC2	Thallium	mg/kg	0.088	0
CR-JBC2	Vanadium	mg/kg	13	1
CR-JBC2	Zinc	mg/kg	34.1	1
CR-JBC3	Aluminum	mg/kg	7940	1
CR-JBC3	Antimony	mg/kg	0.21	1
CR-JBC3	Arsenic	mg/kg	7.52	1
CR-JBC3	Barium	mg/kg	57.9	1
CR-JBC3	Beryllium	mg/kg	0.33	1
CR-JBC3	Cadmium	mg/kg	0.074	0
CR-JBC3	Calcium	mg/kg	12000	1
CR-JBC3	Chromium	mg/kg	9.21	1
CR-JBC3	Cobalt	mg/kg	4.37	1
CR-JBC3	Copper	mg/kg	10.3	1
CR-JBC3	Iron	mg/kg	15000	1
CR-JBC3	Lead	mg/kg	6.12	1
CR-JBC3	Magnesium	mg/kg	6540	1
CR-JBC3	Manganese	mg/kg	275	1
CR-JBC3	Mercury	mg/kg	0.004	1
CR-JBC3	Nickel	mg/kg	9.79	1
CR-JBC3	Potassium	mg/kg	1590	1
CR-JBC3	Selenium	mg/kg	0.2	0
CR-JBC3	Silver	mg/kg	0.051	1
CR-JBC3	Sodium	mg/kg	127	1
CR-JBC3	Thallium	mg/kg	0.093	1
CR-JBC3	Vanadium	mg/kg	12.8	1
CR-JBC3	Zinc	mg/kg	34.3	1
CR-JBD1	Aluminum	mg/kg	7050	1
CR-JBD1	Antimony	mg/kg	0.186	1
CR-JBD1	Arsenic	mg/kg	5.69	1
CR-JBD1	Barium	mg/kg	53.2	1
CR-JBD1	Beryllium	mg/kg	0.29	1
CR-JBD1	Cadmium	mg/kg	0.084	0
CR-JBD1	Calcium	mg/kg	7580	1
CR-JBD1	Chromium	mg/kg	9.02	1
CR-JBD1	Cobalt	mg/kg	4.36	1
CR-JBD1	Copper	mg/kg	8.6	1
CR-JBD1	Iron	mg/kg	14200	1
CR-JBD1	Lead	mg/kg	5.12	1
CR-JBD1	Magnesium	mg/kg	5730	1
CR-JBD1	Manganese	mg/kg	250	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-JBD1	Mercury	mg/kg	0.003	1
CR-JBD1	Nickel	mg/kg	8.53	1
CR-JBD1	Potassium	mg/kg	1300	1
CR-JBD1	Selenium	mg/kg	0.2	0
CR-JBD1	Silver	mg/kg	0.046	1
CR-JBD1	Sodium	mg/kg	109	1
CR-JBD1	Thallium	mg/kg	0.079	0
CR-JBD1	Vanadium	mg/kg	12	1
CR-JBD1	Zinc	mg/kg	33.9	1
CR-JBD2	Aluminum	mg/kg	7020	1
CR-JBD2	Antimony	mg/kg	0.195	1
CR-JBD2	Arsenic	mg/kg	5.99	1
CR-JBD2	Barium	mg/kg	49.6	1
CR-JBD2	Beryllium	mg/kg	0.28	1
CR-JBD2	Cadmium	mg/kg	0.207	1
CR-JBD2	Calcium	mg/kg	6550	1
CR-JBD2	Chromium	mg/kg	8.69	1
CR-JBD2	Cobalt	mg/kg	4.07	1
CR-JBD2	Copper	mg/kg	7.1	1
CR-JBD2	Iron	mg/kg	15800	1
CR-JBD2	Lead	mg/kg	6.11	1
CR-JBD2	Magnesium	mg/kg	5750	1
CR-JBD2	Manganese	mg/kg	248	1
CR-JBD2	Mercury	mg/kg	0.003	1
CR-JBD2	Nickel	mg/kg	7.8	1
CR-JBD2	Potassium	mg/kg	1380	1
CR-JBD2	Selenium	mg/kg	0.2	0
CR-JBD2	Silver	mg/kg	0.035	1
CR-JBD2	Sodium	mg/kg	95	1
CR-JBD2	Thallium	mg/kg	0.103	1
CR-JBD2	Vanadium	mg/kg	12.2	1
CR-JBD2	Zinc	mg/kg	45.2	1
CR-JBD3	Aluminum	mg/kg	6920	1
CR-JBD3	Antimony	mg/kg	0.184	1
CR-JBD3	Arsenic	mg/kg	5.8	1
CR-JBD3	Barium	mg/kg	50	1
CR-JBD3	Beryllium	mg/kg	0.28	1
CR-JBD3	Cadmium	mg/kg	0.231	1
CR-JBD3	Calcium	mg/kg	7530	1
CR-JBD3	Chromium	mg/kg	9.14	1
CR-JBD3	Cobalt	mg/kg	3.74	1
CR-JBD3	Copper	mg/kg	7.6	1
CR-JBD3	Iron	mg/kg	14100	1
CR-JBD3	Lead	mg/kg	6.02	1
CR-JBD3	Magnesium	mg/kg	5680	1
CR-JBD3	Manganese	mg/kg	251	1
CR-JBD3	Mercury	mg/kg	0.004	1
CR-JBD3	Nickel	mg/kg	7.5	1
CR-JBD3	Potassium	mg/kg	1290	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-JBD3	Selenium	mg/kg	0.2	0
CR-JBD3	Silver	mg/kg	0.034	1
CR-JBD3	Sodium	mg/kg	119	1
CR-JBD3	Thallium	mg/kg	0.112	1
CR-JBD3	Vanadium	mg/kg	11.8	1
CR-JBD3	Zinc	mg/kg	45	1
CR-JBE1	Aluminum	mg/kg	6620	1
CR-JBE1	Antimony	mg/kg	0.171	1
CR-JBE1	Arsenic	mg/kg	5.42	1
CR-JBE1	Barium	mg/kg	54.7	1
CR-JBE1	Beryllium	mg/kg	0.25	1
CR-JBE1	Cadmium	mg/kg	0.092	1
CR-JBE1	Calcium	mg/kg	10400	1
CR-JBE1	Chromium	mg/kg	7.61	1
CR-JBE1	Cobalt	mg/kg	4.15	1
CR-JBE1	Copper	mg/kg	7.8	1
CR-JBE1	Iron	mg/kg	13100	1
CR-JBE1	Lead	mg/kg	4.9	1
CR-JBE1	Magnesium	mg/kg	5280	1
CR-JBE1	Manganese	mg/kg	242	1
CR-JBE1	Mercury	mg/kg	0.003	1
CR-JBE1	Nickel	mg/kg	7.64	1
CR-JBE1	Potassium	mg/kg	1280	1
CR-JBE1	Selenium	mg/kg	0.2	0
CR-JBE1	Silver	mg/kg	0.041	1
CR-JBE1	Sodium	mg/kg	159	1
CR-JBE1	Thallium	mg/kg	0.072	0
CR-JBE1	Vanadium	mg/kg	11.3	1
CR-JBE1	Zinc	mg/kg	31.9	1
CR-JBE2	Aluminum	mg/kg	7000	1
CR-JBE2	Antimony	mg/kg	0.415	1
CR-JBE2	Arsenic	mg/kg	5.01	1
CR-JBE2	Barium	mg/kg	53.6	1
CR-JBE2	Beryllium	mg/kg	0.3	1
CR-JBE2	Cadmium	mg/kg	0.093	1
CR-JBE2	Calcium	mg/kg	5610	1
CR-JBE2	Chromium	mg/kg	8.45	1
CR-JBE2	Cobalt	mg/kg	4.59	1
CR-JBE2	Copper	mg/kg	8.5	1
CR-JBE2	Iron	mg/kg	14300	1
CR-JBE2	Lead	mg/kg	5.26	1
CR-JBE2	Magnesium	mg/kg	5130	1
CR-JBE2	Manganese	mg/kg	196	1
CR-JBE2	Mercury	mg/kg	0.004	1
CR-JBE2	Nickel	mg/kg	7.97	1
CR-JBE2	Potassium	mg/kg	1420	1
CR-JBE2	Selenium	mg/kg	0.2	0
CR-JBE2	Silver	mg/kg	0.048	1
CR-JBE2	Sodium	mg/kg	109	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-JBE2	Thallium	mg/kg	0.084	0
CR-JBE2	Vanadium	mg/kg	12.8	1
CR-JBE2	Zinc	mg/kg	35.1	1
CR-JBE3	Aluminum	mg/kg	7980	1
CR-JBE3	Antimony	mg/kg	0.214	1
CR-JBE3	Arsenic	mg/kg	5.95	1
CR-JBE3	Barium	mg/kg	63.7	1
CR-JBE3	Beryllium	mg/kg	0.33	1
CR-JBE3	Cadmium	mg/kg	0.077	0
CR-JBE3	Calcium	mg/kg	1750	1
CR-JBE3	Chromium	mg/kg	9.83	1
CR-JBE3	Cobalt	mg/kg	5.17	1
CR-JBE3	Copper	mg/kg	10.3	1
CR-JBE3	Iron	mg/kg	14600	1
CR-JBE3	Lead	mg/kg	6.48	1
CR-JBE3	Magnesium	mg/kg	4750	1
CR-JBE3	Manganese	mg/kg	247	1
CR-JBE3	Mercury	mg/kg	0.004	1
CR-JBE3	Nickel	mg/kg	8.44	1
CR-JBE3	Potassium	mg/kg	1870	1
CR-JBE3	Selenium	mg/kg	0.2	0
CR-JBE3	Silver	mg/kg	0.038	1
CR-JBE3	Sodium	mg/kg	104	1
CR-JBE3	Thallium	mg/kg	0.1	1
CR-JBE3	Vanadium	mg/kg	14.5	1
CR-JBE3	Zinc	mg/kg	34.6	1
CR-KFA1	Aluminum	mg/kg	8230	1
CR-KFA1	Antimony	mg/kg	0.126	1
CR-KFA1	Arsenic	mg/kg	1.72	1
CR-KFA1	Barium	mg/kg	74.4	1
CR-KFA1	Beryllium	mg/kg	0.22	1
CR-KFA1	Cadmium	mg/kg	0.199	1
CR-KFA1	Calcium	mg/kg	2500	1
CR-KFA1	Chromium	mg/kg	9.73	1
CR-KFA1	Cobalt	mg/kg	3.95	1
CR-KFA1	Copper	mg/kg	10.6	1
CR-KFA1	Iron	mg/kg	13000	1
CR-KFA1	Lead	mg/kg	11.3	1
CR-KFA1	Magnesium	mg/kg	3470	1
CR-KFA1	Manganese	mg/kg	189	1
CR-KFA1	Mercury	mg/kg	0.009	1
CR-KFA1	Nickel	mg/kg	7.95	1
CR-KFA1	Potassium	mg/kg	901	1
CR-KFA1	Selenium	mg/kg	0.2	0
CR-KFA1	Silver	mg/kg	0.058	1
CR-KFA1	Sodium	mg/kg	137	1
CR-KFA1	Thallium	mg/kg	0.127	1
CR-KFA1	Vanadium	mg/kg	19.9	1
CR-KFA1	Zinc	mg/kg	47.5	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-KFA2	Aluminum	mg/kg	8760	1
CR-KFA2	Antimony	mg/kg	0.176	1
CR-KFA2	Arsenic	mg/kg	1.65	1
CR-KFA2	Barium	mg/kg	78.6	1
CR-KFA2	Beryllium	mg/kg	0.22	1
CR-KFA2	Cadmium	mg/kg	0.107	1
CR-KFA2	Calcium	mg/kg	2170	1
CR-KFA2	Chromium	mg/kg	8.39	1
CR-KFA2	Cobalt	mg/kg	3.73	1
CR-KFA2	Copper	mg/kg	11	1
CR-KFA2	Iron	mg/kg	11500	1
CR-KFA2	Lead	mg/kg	4.73	1
CR-KFA2	Magnesium	mg/kg	3050	1
CR-KFA2	Manganese	mg/kg	177	1
CR-KFA2	Mercury	mg/kg	0.004	1
CR-KFA2	Nickel	mg/kg	11.3	1
CR-KFA2	Potassium	mg/kg	993	1
CR-KFA2	Selenium	mg/kg	0.2	0
CR-KFA2	Silver	mg/kg	0.076	1
CR-KFA2	Sodium	mg/kg	138	1
CR-KFA2	Thallium	mg/kg	0.08	1
CR-KFA2	Vanadium	mg/kg	19.7	1
CR-KFA2	Zinc	mg/kg	30.4	1
CR-KFA3	Aluminum	mg/kg	8650	1
CR-KFA3	Antimony	mg/kg	0.088	0
CR-KFA3	Arsenic	mg/kg	1.56	1
CR-KFA3	Barium	mg/kg	77.9	1
CR-KFA3	Beryllium	mg/kg	0.21	1
CR-KFA3	Cadmium	mg/kg	0.1	1
CR-KFA3	Calcium	mg/kg	2470	1
CR-KFA3	Chromium	mg/kg	8.58	1
CR-KFA3	Cobalt	mg/kg	3.66	1
CR-KFA3	Copper	mg/kg	12.1	1
CR-KFA3	Iron	mg/kg	12100	1
CR-KFA3	Lead	mg/kg	4.17	1
CR-KFA3	Magnesium	mg/kg	3270	1
CR-KFA3	Manganese	mg/kg	175	1
CR-KFA3	Mercury	mg/kg	0.004	1
CR-KFA3	Nickel	mg/kg	7.76	1
CR-KFA3	Potassium	mg/kg	992	1
CR-KFA3	Selenium	mg/kg	0.2	0
CR-KFA3	Silver	mg/kg	0.068	1
CR-KFA3	Sodium	mg/kg	158	1
CR-KFA3	Thallium	mg/kg	0.069	1
CR-KFA3	Vanadium	mg/kg	20.4	1
CR-KFA3	Zinc	mg/kg	29.3	1
CR-KFB2-1	Aluminum	mg/kg	4170	1
CR-KFB2-1	Antimony	mg/kg	0.057	0
CR-KFB2-1	Arsenic	mg/kg	1.375	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-KFB2-1	Barium	mg/kg	38.3	1
CR-KFB2-1	Beryllium	mg/kg	0.14	1
CR-KFB2-1	Cadmium	mg/kg	0.098	1
CR-KFB2-1	Calcium	mg/kg	2570	1
CR-KFB2-1	Chromium	mg/kg	7.645	1
CR-KFB2-1	Cobalt	mg/kg	3.565	1
CR-KFB2-1	Copper	mg/kg	7.6	1
CR-KFB2-1	Iron	mg/kg	8805	1
CR-KFB2-1	Lead	mg/kg	2.92	1
CR-KFB2-1	Magnesium	mg/kg	3045	1
CR-KFB2-1	Manganese	mg/kg	154	1
CR-KFB2-1	Mercury	mg/kg	0.0035	1
CR-KFB2-1	Nickel	mg/kg	7.12	1
CR-KFB2-1	Potassium	mg/kg	525.5	1
CR-KFB2-1	Selenium	mg/kg	0.2	0
CR-KFB2-1	Silver	mg/kg	0.063	1
CR-KFB2-1	Sodium	mg/kg	108	1
CR-KFB2-1	Thallium	mg/kg	0.0375	1
CR-KFB2-1	Vanadium	mg/kg	15.25	1
CR-KFB2-1	Zinc	mg/kg	25.2	1
CR-KFB3	Aluminum	mg/kg	4260	1
CR-KFB3	Antimony	mg/kg	0.076	0
CR-KFB3	Arsenic	mg/kg	1.41	1
CR-KFB3	Barium	mg/kg	38.8	1
CR-KFB3	Beryllium	mg/kg	0.12	1
CR-KFB3	Cadmium	mg/kg	0.103	1
CR-KFB3	Calcium	mg/kg	5430	1
CR-KFB3	Chromium	mg/kg	7.99	1
CR-KFB3	Cobalt	mg/kg	2.94	1
CR-KFB3	Copper	mg/kg	8	1
CR-KFB3	Iron	mg/kg	8900	1
CR-KFB3	Lead	mg/kg	2.92	1
CR-KFB3	Magnesium	mg/kg	3290	1
CR-KFB3	Manganese	mg/kg	149	1
CR-KFB3	Mercury	mg/kg	0.006	1
CR-KFB3	Nickel	mg/kg	7.2	1
CR-KFB3	Potassium	mg/kg	616	1
CR-KFB3	Selenium	mg/kg	0.2	0
CR-KFB3	Silver	mg/kg	0.051	1
CR-KFB3	Sodium	mg/kg	113	1
CR-KFB3	Thallium	mg/kg	0.047	1
CR-KFB3	Vanadium	mg/kg	15.9	1
CR-KFB3	Zinc	mg/kg	24.9	1
CR-KFC1	Aluminum	mg/kg	5720	1
CR-KFC1	Antimony	mg/kg	0.13	1
CR-KFC1	Arsenic	mg/kg	1.7	1
CR-KFC1	Barium	mg/kg	48	1
CR-KFC1	Beryllium	mg/kg	0.14	1
CR-KFC1	Cadmium	mg/kg	0.159	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-KFC1	Calcium	mg/kg	2060	1
CR-KFC1	Chromium	mg/kg	8.91	1
CR-KFC1	Cobalt	mg/kg	3.99	1
CR-KFC1	Copper	mg/kg	13.6	1
CR-KFC1	Iron	mg/kg	14500	1
CR-KFC1	Lead	mg/kg	5.11	1
CR-KFC1	Magnesium	mg/kg	3620	1
CR-KFC1	Manganese	mg/kg	177	1
CR-KFC1	Mercury	mg/kg	0.006	1
CR-KFC1	Nickel	mg/kg	8.9	1
CR-KFC1	Potassium	mg/kg	629	1
CR-KFC1	Selenium	mg/kg	0.2	0
CR-KFC1	Silver	mg/kg	0.06	1
CR-KFC1	Sodium	mg/kg	103	1
CR-KFC1	Thallium	mg/kg	0.076	1
CR-KFC1	Vanadium	mg/kg	20.2	1
CR-KFC1	Zinc	mg/kg	38.4	1
CR-KFC2	Aluminum	mg/kg	4960	1
CR-KFC2	Antimony	mg/kg	0.043	0
CR-KFC2	Arsenic	mg/kg	1.81	1
CR-KFC2	Barium	mg/kg	38.7	1
CR-KFC2	Beryllium	mg/kg	0.12	1
CR-KFC2	Cadmium	mg/kg	0.11	1
CR-KFC2	Calcium	mg/kg	2540	1
CR-KFC2	Chromium	mg/kg	7.55	1
CR-KFC2	Cobalt	mg/kg	2.98	1
CR-KFC2	Copper	mg/kg	10.1	1
CR-KFC2	Iron	mg/kg	9900	1
CR-KFC2	Lead	mg/kg	3.51	1
CR-KFC2	Magnesium	mg/kg	3260	1
CR-KFC2	Manganese	mg/kg	167	1
CR-KFC2	Mercury	mg/kg	0.005	1
CR-KFC2	Nickel	mg/kg	6.71	1
CR-KFC2	Potassium	mg/kg	605	1
CR-KFC2	Selenium	mg/kg	0.2	0
CR-KFC2	Silver	mg/kg	0.055	1
CR-KFC2	Sodium	mg/kg	128	1
CR-KFC2	Thallium	mg/kg	0.045	1
CR-KFC2	Vanadium	mg/kg	19.3	1
CR-KFC2	Zinc	mg/kg	28.1	1
CR-KFC3	Aluminum	mg/kg	4190	1
CR-KFC3	Antimony	mg/kg	0.099	0
CR-KFC3	Arsenic	mg/kg	1.48	1
CR-KFC3	Barium	mg/kg	33.5	1
CR-KFC3	Beryllium	mg/kg	0.11	1
CR-KFC3	Cadmium	mg/kg	0.096	1
CR-KFC3	Calcium	mg/kg	2320	1
CR-KFC3	Chromium	mg/kg	8.33	1
CR-KFC3	Cobalt	mg/kg	2.67	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-KFC3	Copper	mg/kg	8.2	1
CR-KFC3	Iron	mg/kg	8810	1
CR-KFC3	Lead	mg/kg	2.9	1
CR-KFC3	Magnesium	mg/kg	2840	1
CR-KFC3	Manganese	mg/kg	136	1
CR-KFC3	Mercury	mg/kg	0.004	1
CR-KFC3	Nickel	mg/kg	5.89	1
CR-KFC3	Potassium	mg/kg	537	1
CR-KFC3	Selenium	mg/kg	0.2	0
CR-KFC3	Silver	mg/kg	0.053	1
CR-KFC3	Sodium	mg/kg	98	1
CR-KFC3	Thallium	mg/kg	0.042	1
CR-KFC3	Vanadium	mg/kg	16.2	1
CR-KFC3	Zinc	mg/kg	22.6	1
CR-KFD1	Aluminum	mg/kg	4470	1
CR-KFD1	Antimony	mg/kg	0.075	0
CR-KFD1	Arsenic	mg/kg	1.68	1
CR-KFD1	Barium	mg/kg	45.8	1
CR-KFD1	Beryllium	mg/kg	0.11	1
CR-KFD1	Cadmium	mg/kg	0.123	1
CR-KFD1	Calcium	mg/kg	2220	1
CR-KFD1	Chromium	mg/kg	9.11	1
CR-KFD1	Cobalt	mg/kg	3.45	1
CR-KFD1	Copper	mg/kg	9.1	1
CR-KFD1	Iron	mg/kg	11400	1
CR-KFD1	Lead	mg/kg	4.97	1
CR-KFD1	Magnesium	mg/kg	2860	1
CR-KFD1	Manganese	mg/kg	142	1
CR-KFD1	Mercury	mg/kg	0.002	1
CR-KFD1	Nickel	mg/kg	7.18	1
CR-KFD1	Potassium	mg/kg	504	1
CR-KFD1	Selenium	mg/kg	0.2	0
CR-KFD1	Silver	mg/kg	0.049	1
CR-KFD1	Sodium	mg/kg	91	1
CR-KFD1	Thallium	mg/kg	0.057	1
CR-KFD1	Vanadium	mg/kg	18.2	1
CR-KFD1	Zinc	mg/kg	30.3	1
CR-KFD2	Aluminum	mg/kg	5000	1
CR-KFD2	Antimony	mg/kg	0.101	0
CR-KFD2	Arsenic	mg/kg	1.47	1
CR-KFD2	Barium	mg/kg	39.2	1
CR-KFD2	Beryllium	mg/kg	0.12	1
CR-KFD2	Cadmium	mg/kg	0.114	1
CR-KFD2	Calcium	mg/kg	2390	1
CR-KFD2	Chromium	mg/kg	8.75	1
CR-KFD2	Cobalt	mg/kg	2.99	1
CR-KFD2	Copper	mg/kg	9.6	1
CR-KFD2	Iron	mg/kg	10100	1
CR-KFD2	Lead	mg/kg	3.37	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-KFD2	Magnesium	mg/kg	3190	1
CR-KFD2	Manganese	mg/kg	153	1
CR-KFD2	Mercury	mg/kg	0.005	1
CR-KFD2	Nickel	mg/kg	7.23	1
CR-KFD2	Potassium	mg/kg	625	1
CR-KFD2	Selenium	mg/kg	0.2	0
CR-KFD2	Silver	mg/kg	0.068	1
CR-KFD2	Sodium	mg/kg	134	1
CR-KFD2	Thallium	mg/kg	0.045	1
CR-KFD2	Vanadium	mg/kg	20	1
CR-KFD2	Zinc	mg/kg	28	1
CR-KFD3	Aluminum	mg/kg	5100	1
CR-KFD3	Antimony	mg/kg	0.13	1
CR-KFD3	Arsenic	mg/kg	1.65	1
CR-KFD3	Barium	mg/kg	57.1	1
CR-KFD3	Beryllium	mg/kg	0.13	1
CR-KFD3	Cadmium	mg/kg	0.102	1
CR-KFD3	Calcium	mg/kg	2410	1
CR-KFD3	Chromium	mg/kg	7.29	1
CR-KFD3	Cobalt	mg/kg	3.04	1
CR-KFD3	Copper	mg/kg	9.9	1
CR-KFD3	Iron	mg/kg	10700	1
CR-KFD3	Lead	mg/kg	3.6	1
CR-KFD3	Magnesium	mg/kg	3260	1
CR-KFD3	Manganese	mg/kg	170	1
CR-KFD3	Mercury	mg/kg	0.005	1
CR-KFD3	Nickel	mg/kg	7.3	1
CR-KFD3	Potassium	mg/kg	643	1
CR-KFD3	Selenium	mg/kg	0.2	0
CR-KFD3	Silver	mg/kg	0.069	1
CR-KFD3	Sodium	mg/kg	124	1
CR-KFD3	Thallium	mg/kg	0.042	1
CR-KFD3	Vanadium	mg/kg	18.8	1
CR-KFD3	Zinc	mg/kg	28.1	1
CR-KFE1	Aluminum	mg/kg	4910	1
CR-KFE1	Antimony	mg/kg	0.077	0
CR-KFE1	Arsenic	mg/kg	1.82	1
CR-KFE1	Barium	mg/kg	40.5	1
CR-KFE1	Beryllium	mg/kg	0.12	1
CR-KFE1	Cadmium	mg/kg	0.115	1
CR-KFE1	Calcium	mg/kg	2350	1
CR-KFE1	Chromium	mg/kg	7.89	1
CR-KFE1	Cobalt	mg/kg	3.21	1
CR-KFE1	Copper	mg/kg	10.1	1
CR-KFE1	Iron	mg/kg	10400	1
CR-KFE1	Lead	mg/kg	3.76	1
CR-KFE1	Magnesium	mg/kg	3130	1
CR-KFE1	Manganese	mg/kg	165	1
CR-KFE1	Mercury	mg/kg	0.003	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-KFE1	Nickel	mg/kg	7.85	1
CR-KFE1	Potassium	mg/kg	565	1
CR-KFE1	Selenium	mg/kg	0.2	0
CR-KFE1	Silver	mg/kg	0.067	1
CR-KFE1	Sodium	mg/kg	120	1
CR-KFE1	Thallium	mg/kg	0.04	1
CR-KFE1	Vanadium	mg/kg	18.6	1
CR-KFE1	Zinc	mg/kg	28	1
CR-KFE2	Aluminum	mg/kg	5190	1
CR-KFE2	Antimony	mg/kg	0.077	0
CR-KFE2	Arsenic	mg/kg	1.89	1
CR-KFE2	Barium	mg/kg	43.8	1
CR-KFE2	Beryllium	mg/kg	0.12	1
CR-KFE2	Cadmium	mg/kg	0.115	1
CR-KFE2	Calcium	mg/kg	2460	1
CR-KFE2	Chromium	mg/kg	8.12	1
CR-KFE2	Cobalt	mg/kg	3.17	1
CR-KFE2	Copper	mg/kg	9	1
CR-KFE2	Iron	mg/kg	11600	1
CR-KFE2	Lead	mg/kg	3.52	1
CR-KFE2	Magnesium	mg/kg	3250	1
CR-KFE2	Manganese	mg/kg	171	1
CR-KFE2	Mercury	mg/kg	0.004	1
CR-KFE2	Nickel	mg/kg	7.87	1
CR-KFE2	Potassium	mg/kg	587	1
CR-KFE2	Selenium	mg/kg	0.2	0
CR-KFE2	Silver	mg/kg	0.068	1
CR-KFE2	Sodium	mg/kg	123	1
CR-KFE2	Thallium	mg/kg	0.046	1
CR-KFE2	Vanadium	mg/kg	18.2	1
CR-KFE2	Zinc	mg/kg	28.6	1
CR-KFE3	Aluminum	mg/kg	4220	1
CR-KFE3	Antimony	mg/kg	0.086	0
CR-KFE3	Arsenic	mg/kg	1.65	1
CR-KFE3	Barium	mg/kg	33.4	1
CR-KFE3	Beryllium	mg/kg	0.1	1
CR-KFE3	Cadmium	mg/kg	0.101	1
CR-KFE3	Calcium	mg/kg	1950	1
CR-KFE3	Chromium	mg/kg	6.87	1
CR-KFE3	Cobalt	mg/kg	2.94	1
CR-KFE3	Copper	mg/kg	8.1	1
CR-KFE3	Iron	mg/kg	9320	1
CR-KFE3	Lead	mg/kg	2.63	1
CR-KFE3	Magnesium	mg/kg	2880	1
CR-KFE3	Manganese	mg/kg	143	1
CR-KFE3	Mercury	mg/kg	0.005	1
CR-KFE3	Nickel	mg/kg	6.75	1
CR-KFE3	Potassium	mg/kg	502	1
CR-KFE3	Selenium	mg/kg	0.2	0

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-KFE3	Silver	mg/kg	0.059	1
CR-KFE3	Sodium	mg/kg	97	1
CR-KFE3	Thallium	mg/kg	0.037	1
CR-KFE3	Vanadium	mg/kg	14.9	1
CR-KFE3	Zinc	mg/kg	24.3	1
CR-KLA1	Aluminum	mg/kg	6780	1
CR-KLA1	Antimony	mg/kg	0.031	0
CR-KLA1	Arsenic	mg/kg	1.8	1
CR-KLA1	Barium	mg/kg	51.1	1
CR-KLA1	Beryllium	mg/kg	0.25	1
CR-KLA1	Cadmium	mg/kg	0.16	1
CR-KLA1	Calcium	mg/kg	7770	1
CR-KLA1	Chromium	mg/kg	12.5	1
CR-KLA1	Cobalt	mg/kg	4.51	1
CR-KLA1	Copper	mg/kg	11.7	1
CR-KLA1	Iron	mg/kg	11400	1
CR-KLA1	Lead	mg/kg	6.27	1
CR-KLA1	Magnesium	mg/kg	5750	1
CR-KLA1	Manganese	mg/kg	193	1
CR-KLA1	Mercury	mg/kg	0.007	1
CR-KLA1	Nickel	mg/kg	14.2	1
CR-KLA1	Potassium	mg/kg	717	1
CR-KLA1	Selenium	mg/kg	0.2	0
CR-KLA1	Silver	mg/kg	0.053	0
CR-KLA1	Sodium	mg/kg	191	1
CR-KLA1	Thallium	mg/kg	0.083	1
CR-KLA1	Vanadium	mg/kg	16.3	1
CR-KLA1	Zinc	mg/kg	41.4	1
CR-KLA2	Aluminum	mg/kg	6890	1
CR-KLA2	Antimony	mg/kg	0.051	0
CR-KLA2	Arsenic	mg/kg	1.57	1
CR-KLA2	Barium	mg/kg	43.3	1
CR-KLA2	Beryllium	mg/kg	0.21	1
CR-KLA2	Cadmium	mg/kg	0.184	1
CR-KLA2	Calcium	mg/kg	13000	1
CR-KLA2	Chromium	mg/kg	14.5	1
CR-KLA2	Cobalt	mg/kg	4.41	1
CR-KLA2	Copper	mg/kg	12.8	1
CR-KLA2	Iron	mg/kg	11700	1
CR-KLA2	Lead	mg/kg	6.03	1
CR-KLA2	Magnesium	mg/kg	6320	1
CR-KLA2	Manganese	mg/kg	178	1
CR-KLA2	Mercury	mg/kg	0.008	1
CR-KLA2	Nickel	mg/kg	13.9	1
CR-KLA2	Potassium	mg/kg	795	1
CR-KLA2	Selenium	mg/kg	0.2	0
CR-KLA2	Silver	mg/kg	0.051	0
CR-KLA2	Sodium	mg/kg	173	1
CR-KLA2	Thallium	mg/kg	0.09	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
CR-KLA2	Vanadium	mg/kg	18.6	1
CR-KLA2	Zinc	mg/kg	39.4	1
CR-KLA3-1	Aluminum	mg/kg	6665	1
CR-KLA3-1	Antimony	mg/kg	0.055	1
CR-KLA3-1	Arsenic	mg/kg	1.665	1
CR-KLA3-1	Barium	mg/kg	46.85	1
CR-KLA3-1	Beryllium	mg/kg	0.22	1
CR-KLA3-1	Cadmium	mg/kg	0.288	1
CR-KLA3-1	Calcium	mg/kg	6745	1
CR-KLA3-1	Chromium	mg/kg	13.5	1
CR-KLA3-1	Cobalt	mg/kg	4.46	1
CR-KLA3-1	Copper	mg/kg	13.05	1
CR-KLA3-1	Iron	mg/kg	11050	1
CR-KLA3-1	Lead	mg/kg	8.435	1
CR-KLA3-1	Magnesium	mg/kg	5975	1
CR-KLA3-1	Manganese	mg/kg	151	1
CR-KLA3-1	Mercury	mg/kg	0.0105	1
CR-KLA3-1	Nickel	mg/kg	12.7	1
CR-KLA3-1	Potassium	mg/kg	825	1
CR-KLA3-1	Selenium	mg/kg	0.2	0
CR-KLA3-1	Silver	mg/kg	0.06	1
CR-KLA3-1	Sodium	mg/kg	158.5	1
CR-KLA3-1	Thallium	mg/kg	0.102	1
CR-KLA3-1	Vanadium	mg/kg	17.5	1
CR-KLA3-1	Zinc	mg/kg	43.15	1
CR-KLB1	Aluminum	mg/kg	9790	1
CR-KLB1	Antimony	mg/kg	0.074	1
CR-KLB1	Arsenic	mg/kg	2.28	1
CR-KLB1	Barium	mg/kg	84.8	1
CR-KLB1	Beryllium	mg/kg	0.39	1
CR-KLB1	Cadmium	mg/kg	0.485	1
CR-KLB1	Calcium	mg/kg	5670	1
CR-KLB1	Chromium	mg/kg	17.3	1
CR-KLB1	Cobalt	mg/kg	6.44	1
CR-KLB1	Copper	mg/kg	21.7	1
CR-KLB1	Iron	mg/kg	15800	1
CR-KLB1	Lead	mg/kg	13.7	1
CR-KLB1	Magnesium	mg/kg	6930	1
CR-KLB1	Manganese	mg/kg	247	1
CR-KLB1	Mercury	mg/kg	0.029	1
CR-KLB1	Nickel	mg/kg	17.4	1
CR-KLB1	Potassium	mg/kg	1190	1
CR-KLB1	Selenium	mg/kg	0.3	1
CR-KLB1	Silver	mg/kg	0.135	1
CR-KLB1	Sodium	mg/kg	162	1
CR-KLB1	Thallium	mg/kg	0.166	1
CR-KLB1	Vanadium	mg/kg	25.4	1
CR-KLB1	Zinc	mg/kg	74.9	1
CR-KLB2	Aluminum	mg/kg	7210	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-KLB2	Antimony	mg/kg	0.075	1
CR-KLB2	Arsenic	mg/kg	2.19	1
CR-KLB2	Barium	mg/kg	54.3	1
CR-KLB2	Beryllium	mg/kg	0.24	1
CR-KLB2	Cadmium	mg/kg	0.366	1
CR-KLB2	Calcium	mg/kg	6650	1
CR-KLB2	Chromium	mg/kg	19.5	1
CR-KLB2	Cobalt	mg/kg	4.79	1
CR-KLB2	Copper	mg/kg	14	1
CR-KLB2	Iron	mg/kg	12300	1
CR-KLB2	Lead	mg/kg	8.74	1
CR-KLB2	Magnesium	mg/kg	5350	1
CR-KLB2	Manganese	mg/kg	197	1
CR-KLB2	Mercury	mg/kg	0.015	1
CR-KLB2	Nickel	mg/kg	13.5	1
CR-KLB2	Potassium	mg/kg	885	1
CR-KLB2	Selenium	mg/kg	0.2	1
CR-KLB2	Silver	mg/kg	0.052	0
CR-KLB2	Sodium	mg/kg	150	1
CR-KLB2	Thallium	mg/kg	0.125	1
CR-KLB2	Vanadium	mg/kg	18.3	1
CR-KLB2	Zinc	mg/kg	53.5	1
CR-KLC1	Aluminum	mg/kg	6670	1
CR-KLC1	Antimony	mg/kg	0.029	0
CR-KLC1	Arsenic	mg/kg	1.88	1
CR-KLC1	Barium	mg/kg	49.6	1
CR-KLC1	Beryllium	mg/kg	0.22	1
CR-KLC1	Cadmium	mg/kg	0.257	1
CR-KLC1	Calcium	mg/kg	3840	1
CR-KLC1	Chromium	mg/kg	13.5	1
CR-KLC1	Cobalt	mg/kg	5.02	1
CR-KLC1	Copper	mg/kg	13.3	1
CR-KLC1	Iron	mg/kg	12600	1
CR-KLC1	Lead	mg/kg	8.99	1
CR-KLC1	Magnesium	mg/kg	5400	1
CR-KLC1	Manganese	mg/kg	179	1
CR-KLC1	Mercury	mg/kg	0.011	1
CR-KLC1	Nickel	mg/kg	13.4	1
CR-KLC1	Potassium	mg/kg	771	1
CR-KLC1	Selenium	mg/kg	0.2	0
CR-KLC1	Silver	mg/kg	0.063	1
CR-KLC1	Sodium	mg/kg	128	1
CR-KLC1	Thallium	mg/kg	0.118	1
CR-KLC1	Vanadium	mg/kg	18.1	1
CR-KLC1	Zinc	mg/kg	54.7	1
CR-KLC2	Aluminum	mg/kg	7210	1
CR-KLC2	Antimony	mg/kg	0.066	1
CR-KLC2	Arsenic	mg/kg	1.79	1
CR-KLC2	Barium	mg/kg	56	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-KLC2	Beryllium	mg/kg	0.24	1
CR-KLC2	Cadmium	mg/kg	0.463	1
CR-KLC2	Calcium	mg/kg	4530	1
CR-KLC2	Chromium	mg/kg	14	1
CR-KLC2	Cobalt	mg/kg	5.44	1
CR-KLC2	Copper	mg/kg	17.5	1
CR-KLC2	Iron	mg/kg	13200	1
CR-KLC2	Lead	mg/kg	13	1
CR-KLC2	Magnesium	mg/kg	6010	1
CR-KLC2	Manganese	mg/kg	164	1
CR-KLC2	Mercury	mg/kg	0.029	1
CR-KLC2	Nickel	mg/kg	18.8	1
CR-KLC2	Potassium	mg/kg	807	1
CR-KLC2	Selenium	mg/kg	0.2	1
CR-KLC2	Silver	mg/kg	0.081	1
CR-KLC2	Sodium	mg/kg	126	1
CR-KLC2	Thallium	mg/kg	0.132	1
CR-KLC2	Vanadium	mg/kg	18.3	1
CR-KLC2	Zinc	mg/kg	71.1	1
CR-KLD1	Aluminum	mg/kg	7190	1
CR-KLD1	Antimony	mg/kg	0.063	1
CR-KLD1	Arsenic	mg/kg	1.84	1
CR-KLD1	Barium	mg/kg	75.7	1
CR-KLD1	Beryllium	mg/kg	0.28	1
CR-KLD1	Cadmium	mg/kg	0.435	1
CR-KLD1	Calcium	mg/kg	3170	1
CR-KLD1	Chromium	mg/kg	12.6	1
CR-KLD1	Cobalt	mg/kg	5.66	1
CR-KLD1	Copper	mg/kg	16.6	1
CR-KLD1	Iron	mg/kg	12400	1
CR-KLD1	Lead	mg/kg	12.6	1
CR-KLD1	Magnesium	mg/kg	4780	1
CR-KLD1	Manganese	mg/kg	232	1
CR-KLD1	Mercury	mg/kg	0.03	1
CR-KLD1	Nickel	mg/kg	15.2	1
CR-KLD1	Potassium	mg/kg	1140	1
CR-KLD1	Selenium	mg/kg	0.2	1
CR-KLD1	Silver	mg/kg	0.11	1
CR-KLD1	Sodium	mg/kg	122	1
CR-KLD1	Thallium	mg/kg	0.172	1
CR-KLD1	Vanadium	mg/kg	17.7	1
CR-KLD1	Zinc	mg/kg	59.2	1
CR-KLE1	Aluminum	mg/kg	6250	1
CR-KLE1	Antimony	mg/kg	0.031	0
CR-KLE1	Arsenic	mg/kg	1.84	1
CR-KLE1	Barium	mg/kg	46.5	1
CR-KLE1	Beryllium	mg/kg	0.21	1
CR-KLE1	Cadmium	mg/kg	0.173	1
CR-KLE1	Calcium	mg/kg	11500	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-KLE1	Chromium	mg/kg	16	1
CR-KLE1	Cobalt	mg/kg	4.84	1
CR-KLE1	Copper	mg/kg	18.4	1
CR-KLE1	Iron	mg/kg	11600	1
CR-KLE1	Lead	mg/kg	5.96	1
CR-KLE1	Magnesium	mg/kg	5620	1
CR-KLE1	Manganese	mg/kg	255	1
CR-KLE1	Mercury	mg/kg	0.005	1
CR-KLE1	Nickel	mg/kg	18.6	1
CR-KLE1	Potassium	mg/kg	763	1
CR-KLE1	Selenium	mg/kg	0.2	0
CR-KLE1	Silver	mg/kg	0.048	0
CR-KLE1	Sodium	mg/kg	124	1
CR-KLE1	Thallium	mg/kg	0.084	1
CR-KLE1	Vanadium	mg/kg	21.1	1
CR-KLE1	Zinc	mg/kg	37.3	1
CR-KLE2	Aluminum	mg/kg	6020	1
CR-KLE2	Antimony	mg/kg	0.021	0
CR-KLE2	Arsenic	mg/kg	1.77	1
CR-KLE2	Barium	mg/kg	40.1	1
CR-KLE2	Beryllium	mg/kg	0.23	1
CR-KLE2	Cadmium	mg/kg	0.304	1
CR-KLE2	Calcium	mg/kg	5280	1
CR-KLE2	Chromium	mg/kg	12.3	1
CR-KLE2	Cobalt	mg/kg	4.8	1
CR-KLE2	Copper	mg/kg	14.1	1
CR-KLE2	Iron	mg/kg	11500	1
CR-KLE2	Lead	mg/kg	9.68	1
CR-KLE2	Magnesium	mg/kg	5720	1
CR-KLE2	Manganese	mg/kg	172	1
CR-KLE2	Mercury	mg/kg	0.012	1
CR-KLE2	Nickel	mg/kg	16.9	1
CR-KLE2	Potassium	mg/kg	649	1
CR-KLE2	Selenium	mg/kg	0.2	0
CR-KLE2	Silver	mg/kg	0.052	0
CR-KLE2	Sodium	mg/kg	137	1
CR-KLE2	Thallium	mg/kg	0.104	1
CR-KLE2	Vanadium	mg/kg	19.8	1
CR-KLE2	Zinc	mg/kg	51.9	1
CR-KLE3	Aluminum	mg/kg	6520	1
CR-KLE3	Antimony	mg/kg	0.014	0
CR-KLE3	Arsenic	mg/kg	1.93	1
CR-KLE3	Barium	mg/kg	52.3	1
CR-KLE3	Beryllium	mg/kg	0.23	1
CR-KLE3	Cadmium	mg/kg	0.354	1
CR-KLE3	Calcium	mg/kg	7710	1
CR-KLE3	Chromium	mg/kg	11.9	1
CR-KLE3	Cobalt	mg/kg	4.04	1
CR-KLE3	Copper	mg/kg	13.1	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-KLE3	Iron	mg/kg	11400	1
CR-KLE3	Lead	mg/kg	8.74	1
CR-KLE3	Magnesium	mg/kg	4920	1
CR-KLE3	Manganese	mg/kg	198	1
CR-KLE3	Mercury	mg/kg	0.006	1
CR-KLE3	Nickel	mg/kg	12	1
CR-KLE3	Potassium	mg/kg	777	1
CR-KLE3	Selenium	mg/kg	0.2	0
CR-KLE3	Silver	mg/kg	0.046	0
CR-KLE3	Sodium	mg/kg	139	1
CR-KLE3	Thallium	mg/kg	0.087	1
CR-KLE3	Vanadium	mg/kg	19.2	1
CR-KLE3	Zinc	mg/kg	57	1
CR-LYA1	Aluminum	mg/kg	5000	1
CR-LYA1	Antimony	mg/kg	0.113	1
CR-LYA1	Arsenic	mg/kg	1.57	1
CR-LYA1	Barium	mg/kg	44.2	1
CR-LYA1	Beryllium	mg/kg	0.16	1
CR-LYA1	Cadmium	mg/kg	0.284	1
CR-LYA1	Calcium	mg/kg	2010	1
CR-LYA1	Chromium	mg/kg	6.5	1
CR-LYA1	Cobalt	mg/kg	5.51	1
CR-LYA1	Copper	mg/kg	8.4	1
CR-LYA1	Iron	mg/kg	10800	1
CR-LYA1	Lead	mg/kg	12.4	1
CR-LYA1	Magnesium	mg/kg	3320	1
CR-LYA1	Manganese	mg/kg	127	1
CR-LYA1	Mercury	mg/kg	0.009	1
CR-LYA1	Nickel	mg/kg	8.46	1
CR-LYA1	Potassium	mg/kg	711	1
CR-LYA1	Selenium	mg/kg	0.2	0
CR-LYA1	Silver	mg/kg	0.065	1
CR-LYA1	Sodium	mg/kg	99	1
CR-LYA1	Thallium	mg/kg	0.144	1
CR-LYA1	Vanadium	mg/kg	15.2	1
CR-LYA1	Zinc	mg/kg	59.8	1
CR-LYC3	Aluminum	mg/kg	12300	1
CR-LYC3	Antimony	mg/kg	0.173	1
CR-LYC3	Arsenic	mg/kg	1.43	1
CR-LYC3	Barium	mg/kg	115	1
CR-LYC3	Beryllium	mg/kg	0.31	1
CR-LYC3	Cadmium	mg/kg	0.141	1
CR-LYC3	Calcium	mg/kg	2150	1
CR-LYC3	Chromium	mg/kg	7.74	1
CR-LYC3	Cobalt	mg/kg	3.99	1
CR-LYC3	Copper	mg/kg	12.1	1
CR-LYC3	Iron	mg/kg	12700	1
CR-LYC3	Lead	mg/kg	5.74	1
CR-LYC3	Magnesium	mg/kg	3060	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-LYC3	Manganese	mg/kg	141	1
CR-LYC3	Mercury	mg/kg	0.006	1
CR-LYC3	Nickel	mg/kg	9.54	1
CR-LYC3	Potassium	mg/kg	1120	1
CR-LYC3	Selenium	mg/kg	0.2	0
CR-LYC3	Silver	mg/kg	0.065	1
CR-LYC3	Sodium	mg/kg	142	1
CR-LYC3	Thallium	mg/kg	0.074	1
CR-LYC3	Vanadium	mg/kg	15.5	1
CR-LYC3	Zinc	mg/kg	38.4	1
CR-MGA1	Aluminum	mg/kg	6280	1
CR-MGA1	Antimony	mg/kg	0.36	1
CR-MGA1	Arsenic	mg/kg	3.88	1
CR-MGA1	Barium	mg/kg	46.6	1
CR-MGA1	Beryllium	mg/kg	0.21	1
CR-MGA1	Cadmium	mg/kg	0.097	1
CR-MGA1	Calcium	mg/kg	1760	1
CR-MGA1	Chromium	mg/kg	11.6	1
CR-MGA1	Cobalt	mg/kg	4.5	1
CR-MGA1	Copper	mg/kg	11.4	1
CR-MGA1	Iron	mg/kg	14100	1
CR-MGA1	Lead	mg/kg	5.54	1
CR-MGA1	Magnesium	mg/kg	3340	1
CR-MGA1	Manganese	mg/kg	175	1
CR-MGA1	Mercury	mg/kg	0.006	1
CR-MGA1	Nickel	mg/kg	12.5	1
CR-MGA1	Potassium	mg/kg	856	1
CR-MGA1	Selenium	mg/kg	0.2	0
CR-MGA1	Silver	mg/kg	0.073	0
CR-MGA1	Sodium	mg/kg	51	1
CR-MGA1	Thallium	mg/kg	0.07	1
CR-MGA1	Vanadium	mg/kg	14.9	1
CR-MGA1	Zinc	mg/kg	32.9	1
CR-MGA2	Aluminum	mg/kg	6090	1
CR-MGA2	Antimony	mg/kg	0.145	1
CR-MGA2	Arsenic	mg/kg	3.98	1
CR-MGA2	Barium	mg/kg	53	1
CR-MGA2	Beryllium	mg/kg	0.21	1
CR-MGA2	Cadmium	mg/kg	0.109	1
CR-MGA2	Calcium	mg/kg	1920	1
CR-MGA2	Chromium	mg/kg	11.8	1
CR-MGA2	Cobalt	mg/kg	4.68	1
CR-MGA2	Copper	mg/kg	10	1
CR-MGA2	Iron	mg/kg	13500	1
CR-MGA2	Lead	mg/kg	5.12	1
CR-MGA2	Magnesium	mg/kg	3190	1
CR-MGA2	Manganese	mg/kg	243	1
CR-MGA2	Mercury	mg/kg	0.005	1
CR-MGA2	Nickel	mg/kg	13	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-MGA2	Potassium	mg/kg	908	1
CR-MGA2	Selenium	mg/kg	0.2	0
CR-MGA2	Silver	mg/kg	0.049	0
CR-MGA2	Sodium	mg/kg	56	1
CR-MGA2	Thallium	mg/kg	0.07	1
CR-MGA2	Vanadium	mg/kg	15.8	1
CR-MGA2	Zinc	mg/kg	32.9	1
CR-MGA3	Aluminum	mg/kg	6200	1
CR-MGA3	Antimony	mg/kg	0.157	1
CR-MGA3	Arsenic	mg/kg	3.94	1
CR-MGA3	Barium	mg/kg	46.5	1
CR-MGA3	Beryllium	mg/kg	0.22	1
CR-MGA3	Cadmium	mg/kg	0.113	1
CR-MGA3	Calcium	mg/kg	1870	1
CR-MGA3	Chromium	mg/kg	11.3	1
CR-MGA3	Cobalt	mg/kg	4.91	1
CR-MGA3	Copper	mg/kg	9.6	1
CR-MGA3	Iron	mg/kg	13600	1
CR-MGA3	Lead	mg/kg	5.07	1
CR-MGA3	Magnesium	mg/kg	3330	1
CR-MGA3	Manganese	mg/kg	226	1
CR-MGA3	Mercury	mg/kg	0.005	1
CR-MGA3	Nickel	mg/kg	12.2	1
CR-MGA3	Potassium	mg/kg	964	1
CR-MGA3	Selenium	mg/kg	0.2	0
CR-MGA3	Silver	mg/kg	0.044	0
CR-MGA3	Sodium	mg/kg	59	1
CR-MGA3	Thallium	mg/kg	0.058	1
CR-MGA3	Vanadium	mg/kg	15.2	1
CR-MGA3	Zinc	mg/kg	32.6	1
CR-MGB1	Aluminum	mg/kg	6160	1
CR-MGB1	Antimony	mg/kg	0.182	1
CR-MGB1	Arsenic	mg/kg	3.31	1
CR-MGB1	Barium	mg/kg	46.5	1
CR-MGB1	Beryllium	mg/kg	0.2	1
CR-MGB1	Cadmium	mg/kg	0.097	1
CR-MGB1	Calcium	mg/kg	2170	1
CR-MGB1	Chromium	mg/kg	11.3	1
CR-MGB1	Cobalt	mg/kg	4.91	1
CR-MGB1	Copper	mg/kg	9.5	1
CR-MGB1	Iron	mg/kg	14700	1
CR-MGB1	Lead	mg/kg	5.03	1
CR-MGB1	Magnesium	mg/kg	3770	1
CR-MGB1	Manganese	mg/kg	191	1
CR-MGB1	Mercury	mg/kg	0.004	1
CR-MGB1	Nickel	mg/kg	12.7	1
CR-MGB1	Potassium	mg/kg	775	1
CR-MGB1	Selenium	mg/kg	0.2	0
CR-MGB1	Silver	mg/kg	0.041	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MGB1	Sodium	mg/kg	66	1
CR-MGB1	Thallium	mg/kg	0.057	1
CR-MGB1	Vanadium	mg/kg	13.9	1
CR-MGB1	Zinc	mg/kg	36.6	1
CR-MGB2	Aluminum	mg/kg	6220	1
CR-MGB2	Antimony	mg/kg	0.176	1
CR-MGB2	Arsenic	mg/kg	4.12	1
CR-MGB2	Barium	mg/kg	56.3	1
CR-MGB2	Beryllium	mg/kg	0.23	1
CR-MGB2	Cadmium	mg/kg	0.118	1
CR-MGB2	Calcium	mg/kg	2120	1
CR-MGB2	Chromium	mg/kg	12.3	1
CR-MGB2	Cobalt	mg/kg	5.6	1
CR-MGB2	Copper	mg/kg	11.3	1
CR-MGB2	Iron	mg/kg	15700	1
CR-MGB2	Lead	mg/kg	5.57	1
CR-MGB2	Magnesium	mg/kg	4110	1
CR-MGB2	Manganese	mg/kg	251	1
CR-MGB2	Mercury	mg/kg	0.004	1
CR-MGB2	Nickel	mg/kg	14.4	1
CR-MGB2	Potassium	mg/kg	802	1
CR-MGB2	Selenium	mg/kg	0.2	0
CR-MGB2	Silver	mg/kg	0.054	0
CR-MGB2	Sodium	mg/kg	60	1
CR-MGB2	Thallium	mg/kg	0.064	1
CR-MGB2	Vanadium	mg/kg	16.6	1
CR-MGB2	Zinc	mg/kg	38.8	1
CR-MGB3	Aluminum	mg/kg	5590	1
CR-MGB3	Antimony	mg/kg	0.145	1
CR-MGB3	Arsenic	mg/kg	3.44	1
CR-MGB3	Barium	mg/kg	41	1
CR-MGB3	Beryllium	mg/kg	0.17	1
CR-MGB3	Cadmium	mg/kg	0.114	1
CR-MGB3	Calcium	mg/kg	2040	1
CR-MGB3	Chromium	mg/kg	12.4	1
CR-MGB3	Cobalt	mg/kg	4.75	1
CR-MGB3	Copper	mg/kg	10.1	1
CR-MGB3	Iron	mg/kg	13500	1
CR-MGB3	Lead	mg/kg	4.85	1
CR-MGB3	Magnesium	mg/kg	3620	1
CR-MGB3	Manganese	mg/kg	197	1
CR-MGB3	Mercury	mg/kg	0.004	1
CR-MGB3	Nickel	mg/kg	13	1
CR-MGB3	Potassium	mg/kg	685	1
CR-MGB3	Selenium	mg/kg	0.2	0
CR-MGB3	Silver	mg/kg	0.044	0
CR-MGB3	Sodium	mg/kg	66	1
CR-MGB3	Thallium	mg/kg	0.06	1
CR-MGB3	Vanadium	mg/kg	14.7	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MGB3	Zinc	mg/kg	33.3	1
CR-MGC1	Aluminum	mg/kg	5810	1
CR-MGC1	Antimony	mg/kg	0.194	1
CR-MGC1	Arsenic	mg/kg	3.69	1
CR-MGC1	Barium	mg/kg	52	1
CR-MGC1	Beryllium	mg/kg	0.17	1
CR-MGC1	Cadmium	mg/kg	0.184	1
CR-MGC1	Calcium	mg/kg	6220	1
CR-MGC1	Chromium	mg/kg	12.3	1
CR-MGC1	Cobalt	mg/kg	4.89	1
CR-MGC1	Copper	mg/kg	9.1	1
CR-MGC1	Iron	mg/kg	13900	1
CR-MGC1	Lead	mg/kg	5.37	1
CR-MGC1	Magnesium	mg/kg	4030	1
CR-MGC1	Manganese	mg/kg	200	1
CR-MGC1	Mercury	mg/kg	0.003	1
CR-MGC1	Nickel	mg/kg	13.3	1
CR-MGC1	Potassium	mg/kg	919	1
CR-MGC1	Selenium	mg/kg	0.2	0
CR-MGC1	Silver	mg/kg	0.045	0
CR-MGC1	Sodium	mg/kg	68	1
CR-MGC1	Thallium	mg/kg	0.095	1
CR-MGC1	Vanadium	mg/kg	14.9	1
CR-MGC1	Zinc	mg/kg	42.1	1
CR-MGC2	Aluminum	mg/kg	5770	1
CR-MGC2	Antimony	mg/kg	0.165	1
CR-MGC2	Arsenic	mg/kg	3.64	1
CR-MGC2	Barium	mg/kg	51.1	1
CR-MGC2	Beryllium	mg/kg	0.18	1
CR-MGC2	Cadmium	mg/kg	0.228	1
CR-MGC2	Calcium	mg/kg	7330	1
CR-MGC2	Chromium	mg/kg	12.2	1
CR-MGC2	Cobalt	mg/kg	4.49	1
CR-MGC2	Copper	mg/kg	9.5	1
CR-MGC2	Iron	mg/kg	13400	1
CR-MGC2	Lead	mg/kg	5.68	1
CR-MGC2	Magnesium	mg/kg	3870	1
CR-MGC2	Manganese	mg/kg	177	1
CR-MGC2	Mercury	mg/kg	0.005	1
CR-MGC2	Nickel	mg/kg	12.3	1
CR-MGC2	Potassium	mg/kg	872	1
CR-MGC2	Selenium	mg/kg	0.2	0
CR-MGC2	Silver	mg/kg	0.044	0
CR-MGC2	Sodium	mg/kg	70	1
CR-MGC2	Thallium	mg/kg	0.095	1
CR-MGC2	Vanadium	mg/kg	14	1
CR-MGC2	Zinc	mg/kg	46.2	1
CR-MGC3	Aluminum	mg/kg	5820	1
CR-MGC3	Antimony	mg/kg	0.156	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MGC3	Arsenic	mg/kg	3.52	1
CR-MGC3	Barium	mg/kg	48.6	1
CR-MGC3	Beryllium	mg/kg	0.17	1
CR-MGC3	Cadmium	mg/kg	0.427	1
CR-MGC3	Calcium	mg/kg	4430	1
CR-MGC3	Chromium	mg/kg	12.2	1
CR-MGC3	Cobalt	mg/kg	4.65	1
CR-MGC3	Copper	mg/kg	8.8	1
CR-MGC3	Iron	mg/kg	13800	1
CR-MGC3	Lead	mg/kg	8.65	1
CR-MGC3	Magnesium	mg/kg	3820	1
CR-MGC3	Manganese	mg/kg	162	1
CR-MGC3	Mercury	mg/kg	0.01	1
CR-MGC3	Nickel	mg/kg	12.4	1
CR-MGC3	Potassium	mg/kg	887	1
CR-MGC3	Selenium	mg/kg	0.2	0
CR-MGC3	Silver	mg/kg	0.045	0
CR-MGC3	Sodium	mg/kg	69	1
CR-MGC3	Thallium	mg/kg	0.132	1
CR-MGC3	Vanadium	mg/kg	13.8	1
CR-MGC3	Zinc	mg/kg	64.3	1
CR-MGD1	Aluminum	mg/kg	13800	1
CR-MGD1	Antimony	mg/kg	0.355	1
CR-MGD1	Arsenic	mg/kg	7.96	1
CR-MGD1	Barium	mg/kg	155	1
CR-MGD1	Beryllium	mg/kg	0.49	1
CR-MGD1	Cadmium	mg/kg	0.223	1
CR-MGD1	Calcium	mg/kg	21500	1
CR-MGD1	Chromium	mg/kg	25	1
CR-MGD1	Cobalt	mg/kg	11.7	1
CR-MGD1	Copper	mg/kg	24.4	1
CR-MGD1	Iron	mg/kg	28000	1
CR-MGD1	Lead	mg/kg	12.1	1
CR-MGD1	Magnesium	mg/kg	7860	1
CR-MGD1	Manganese	mg/kg	480	1
CR-MGD1	Mercury	mg/kg	0.025	1
CR-MGD1	Nickel	mg/kg	29.3	1
CR-MGD1	Potassium	mg/kg	2270	1
CR-MGD1	Selenium	mg/kg	0.2	0
CR-MGD1	Silver	mg/kg	0.133	1
CR-MGD1	Sodium	mg/kg	112	1
CR-MGD1	Thallium	mg/kg	0.15	1
CR-MGD1	Vanadium	mg/kg	26.8	1
CR-MGD1	Zinc	mg/kg	73.4	1
CR-MGD2	Aluminum	mg/kg	15600	1
CR-MGD2	Antimony	mg/kg	0.137	1
CR-MGD2	Arsenic	mg/kg	11.9	1
CR-MGD2	Barium	mg/kg	204	1
CR-MGD2	Beryllium	mg/kg	0.54	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MGD2	Cadmium	mg/kg	0.255	1
CR-MGD2	Calcium	mg/kg	57100	1
CR-MGD2	Chromium	mg/kg	30.2	1
CR-MGD2	Cobalt	mg/kg	12	1
CR-MGD2	Copper	mg/kg	27.1	1
CR-MGD2	Iron	mg/kg	28200	1
CR-MGD2	Lead	mg/kg	13.2	1
CR-MGD2	Magnesium	mg/kg	9800	1
CR-MGD2	Manganese	mg/kg	504	1
CR-MGD2	Mercury	mg/kg	0.028	1
CR-MGD2	Nickel	mg/kg	32.1	1
CR-MGD2	Potassium	mg/kg	2380	1
CR-MGD2	Selenium	mg/kg	0.2	0
CR-MGD2	Silver	mg/kg	0.156	1
CR-MGD2	Sodium	mg/kg	137	1
CR-MGD2	Thallium	mg/kg	0.146	1
CR-MGD2	Vanadium	mg/kg	32.1	1
CR-MGD2	Zinc	mg/kg	75.2	1
CR-MGD3	Aluminum	mg/kg	16400	1
CR-MGD3	Antimony	mg/kg	0.128	1
CR-MGD3	Arsenic	mg/kg	13	1
CR-MGD3	Barium	mg/kg	202	1
CR-MGD3	Beryllium	mg/kg	0.59	1
CR-MGD3	Cadmium	mg/kg	0.291	1
CR-MGD3	Calcium	mg/kg	42300	1
CR-MGD3	Chromium	mg/kg	34	1
CR-MGD3	Cobalt	mg/kg	12.3	1
CR-MGD3	Copper	mg/kg	29	1
CR-MGD3	Iron	mg/kg	28500	1
CR-MGD3	Lead	mg/kg	15	1
CR-MGD3	Magnesium	mg/kg	11000	1
CR-MGD3	Manganese	mg/kg	543	1
CR-MGD3	Mercury	mg/kg	0.024	1
CR-MGD3	Nickel	mg/kg	31.8	1
CR-MGD3	Potassium	mg/kg	2620	1
CR-MGD3	Selenium	mg/kg	0.2	0
CR-MGD3	Silver	mg/kg	0.104	1
CR-MGD3	Sodium	mg/kg	143	1
CR-MGD3	Thallium	mg/kg	0.172	1
CR-MGD3	Vanadium	mg/kg	36.6	1
CR-MGD3	Zinc	mg/kg	79	1
CR-MGE1-1	Aluminum	mg/kg	7325	1
CR-MGE1-1	Antimony	mg/kg	0.085	0
CR-MGE1-1	Arsenic	mg/kg	4.15	1
CR-MGE1-1	Barium	mg/kg	81.45	1
CR-MGE1-1	Beryllium	mg/kg	0.24	1
CR-MGE1-1	Cadmium	mg/kg	0.2205	1
CR-MGE1-1	Calcium	mg/kg	2720	1
CR-MGE1-1	Chromium	mg/kg	12.45	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MGE1-1	Cobalt	mg/kg	6.19	1
CR-MGE1-1	Copper	mg/kg	10.7	1
CR-MGE1-1	Iron	mg/kg	13500	1
CR-MGE1-1	Lead	mg/kg	9.34	1
CR-MGE1-1	Magnesium	mg/kg	3700	1
CR-MGE1-1	Manganese	mg/kg	261	1
CR-MGE1-1	Mercury	mg/kg	0.01	1
CR-MGE1-1	Nickel	mg/kg	12.95	1
CR-MGE1-1	Potassium	mg/kg	1340	1
CR-MGE1-1	Selenium	mg/kg	0.2	0
CR-MGE1-1	Silver	mg/kg	0.038	0
CR-MGE1-1	Sodium	mg/kg	73	1
CR-MGE1-1	Thallium	mg/kg	0.182	1
CR-MGE1-1	Vanadium	mg/kg	15.5	1
CR-MGE1-1	Zinc	mg/kg	54.2	1
CR-MGE2	Aluminum	mg/kg	5250	1
CR-MGE2	Antimony	mg/kg	0.064	0
CR-MGE2	Arsenic	mg/kg	2.56	1
CR-MGE2	Barium	mg/kg	53.3	1
CR-MGE2	Beryllium	mg/kg	0.16	1
CR-MGE2	Cadmium	mg/kg	0.115	1
CR-MGE2	Calcium	mg/kg	2020	1
CR-MGE2	Chromium	mg/kg	9.68	1
CR-MGE2	Cobalt	mg/kg	4.14	1
CR-MGE2	Copper	mg/kg	8.9	1
CR-MGE2	Iron	mg/kg	10200	1
CR-MGE2	Lead	mg/kg	5.63	1
CR-MGE2	Magnesium	mg/kg	2770	1
CR-MGE2	Manganese	mg/kg	169	1
CR-MGE2	Mercury	mg/kg	0.005	1
CR-MGE2	Nickel	mg/kg	9.79	1
CR-MGE2	Potassium	mg/kg	956	1
CR-MGE2	Selenium	mg/kg	0.2	0
CR-MGE2	Silver	mg/kg	0.041	0
CR-MGE2	Sodium	mg/kg	63	1
CR-MGE2	Thallium	mg/kg	0.097	1
CR-MGE2	Vanadium	mg/kg	12.6	1
CR-MGE2	Zinc	mg/kg	32.4	1
CR-MGE3	Aluminum	mg/kg	6860	1
CR-MGE3	Antimony	mg/kg	0.08	0
CR-MGE3	Arsenic	mg/kg	2.55	1
CR-MGE3	Barium	mg/kg	60	1
CR-MGE3	Beryllium	mg/kg	0.2	1
CR-MGE3	Cadmium	mg/kg	0.091	1
CR-MGE3	Calcium	mg/kg	4200	1
CR-MGE3	Chromium	mg/kg	13.5	1
CR-MGE3	Cobalt	mg/kg	4.98	1
CR-MGE3	Copper	mg/kg	12	1
CR-MGE3	Iron	mg/kg	13200	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MGE3	Lead	mg/kg	5.38	1
CR-MGE3	Magnesium	mg/kg	3870	1
CR-MGE3	Manganese	mg/kg	219	1
CR-MGE3	Mercury	mg/kg	0.008	1
CR-MGE3	Nickel	mg/kg	13.3	1
CR-MGE3	Potassium	mg/kg	1190	1
CR-MGE3	Selenium	mg/kg	0.2	0
CR-MGE3	Silver	mg/kg	0.079	1
CR-MGE3	Sodium	mg/kg	91	1
CR-MGE3	Thallium	mg/kg	0.081	1
CR-MGE3	Vanadium	mg/kg	16.3	1
CR-MGE3	Zinc	mg/kg	32.3	1
CR-MPA1	Aluminum	mg/kg	6070	1
CR-MPA1	Antimony	mg/kg	0.184	1
CR-MPA1	Arsenic	mg/kg	4.41	1
CR-MPA1	Barium	mg/kg	56.2	1
CR-MPA1	Beryllium	mg/kg	0.17	1
CR-MPA1	Cadmium	mg/kg	0.096	1
CR-MPA1	Calcium	mg/kg	4560	1
CR-MPA1	Chromium	mg/kg	12.1	1
CR-MPA1	Cobalt	mg/kg	5.63	1
CR-MPA1	Copper	mg/kg	11.8	1
CR-MPA1	Iron	mg/kg	14200	1
CR-MPA1	Lead	mg/kg	5.9	1
CR-MPA1	Magnesium	mg/kg	3950	1
CR-MPA1	Manganese	mg/kg	212	1
CR-MPA1	Mercury	mg/kg	0.006	1
CR-MPA1	Nickel	mg/kg	14	1
CR-MPA1	Potassium	mg/kg	936	1
CR-MPA1	Selenium	mg/kg	0.2	0
CR-MPA1	Silver	mg/kg	0.07	1
CR-MPA1	Sodium	mg/kg	137	1
CR-MPA1	Thallium	mg/kg	0.113	1
CR-MPA1	Vanadium	mg/kg	13.4	1
CR-MPA1	Zinc	mg/kg	37.4	1
CR-MPA2	Aluminum	mg/kg	6810	1
CR-MPA2	Antimony	mg/kg	0.251	1
CR-MPA2	Arsenic	mg/kg	6.13	1
CR-MPA2	Barium	mg/kg	65.2	1
CR-MPA2	Beryllium	mg/kg	0.22	1
CR-MPA2	Cadmium	mg/kg	0.131	1
CR-MPA2	Calcium	mg/kg	5390	1
CR-MPA2	Chromium	mg/kg	12.8	1
CR-MPA2	Cobalt	mg/kg	6.72	1
CR-MPA2	Copper	mg/kg	14.3	1
CR-MPA2	Iron	mg/kg	15900	1
CR-MPA2	Lead	mg/kg	6.71	1
CR-MPA2	Magnesium	mg/kg	4390	1
CR-MPA2	Manganese	mg/kg	279	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MPA2	Mercury	mg/kg	0.006	1
CR-MPA2	Nickel	mg/kg	16.9	1
CR-MPA2	Potassium	mg/kg	1060	1
CR-MPA2	Selenium	mg/kg	0.2	0
CR-MPA2	Silver	mg/kg	0.074	1
CR-MPA2	Sodium	mg/kg	112	1
CR-MPA2	Thallium	mg/kg	0.115	1
CR-MPA2	Vanadium	mg/kg	13.6	1
CR-MPA2	Zinc	mg/kg	44.1	1
CR-MPA3	Aluminum	mg/kg	7820	1
CR-MPA3	Antimony	mg/kg	0.258	1
CR-MPA3	Arsenic	mg/kg	4.43	1
CR-MPA3	Barium	mg/kg	86.8	1
CR-MPA3	Beryllium	mg/kg	0.29	1
CR-MPA3	Cadmium	mg/kg	0.259	1
CR-MPA3	Calcium	mg/kg	7220	1
CR-MPA3	Chromium	mg/kg	15.8	1
CR-MPA3	Cobalt	mg/kg	7.33	1
CR-MPA3	Copper	mg/kg	19.2	1
CR-MPA3	Iron	mg/kg	17200	1
CR-MPA3	Lead	mg/kg	8.54	1
CR-MPA3	Magnesium	mg/kg	4830	1
CR-MPA3	Manganese	mg/kg	248	1
CR-MPA3	Mercury	mg/kg	0.011	1
CR-MPA3	Nickel	mg/kg	18.2	1
CR-MPA3	Potassium	mg/kg	1210	1
CR-MPA3	Selenium	mg/kg	0.2	0
CR-MPA3	Silver	mg/kg	0.109	1
CR-MPA3	Sodium	mg/kg	131	1
CR-MPA3	Thallium	mg/kg	0.162	1
CR-MPA3	Vanadium	mg/kg	16.9	1
CR-MPA3	Zinc	mg/kg	51.3	1
CR-MPB1	Aluminum	mg/kg	5520	1
CR-MPB1	Antimony	mg/kg	0.207	1
CR-MPB1	Arsenic	mg/kg	3.49	1
CR-MPB1	Barium	mg/kg	62.9	1
CR-MPB1	Beryllium	mg/kg	0.17	1
CR-MPB1	Cadmium	mg/kg	0.091	1
CR-MPB1	Calcium	mg/kg	4480	1
CR-MPB1	Chromium	mg/kg	11.2	1
CR-MPB1	Cobalt	mg/kg	4.56	1
CR-MPB1	Copper	mg/kg	12.7	1
CR-MPB1	Iron	mg/kg	14000	1
CR-MPB1	Lead	mg/kg	4.32	1
CR-MPB1	Magnesium	mg/kg	3630	1
CR-MPB1	Manganese	mg/kg	199	1
CR-MPB1	Mercury	mg/kg	0.003	1
CR-MPB1	Nickel	mg/kg	13.5	1
CR-MPB1	Potassium	mg/kg	861	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MPB1	Selenium	mg/kg	0.2	0
CR-MPB1	Silver	mg/kg	0.087	1
CR-MPB1	Sodium	mg/kg	102	1
CR-MPB1	Thallium	mg/kg	0.065	0
CR-MPB1	Vanadium	mg/kg	13.5	1
CR-MPB1	Zinc	mg/kg	35.1	1
CR-MPB2	Aluminum	mg/kg	6380	1
CR-MPB2	Antimony	mg/kg	0.258	1
CR-MPB2	Arsenic	mg/kg	4.3	1
CR-MPB2	Barium	mg/kg	61.6	1
CR-MPB2	Beryllium	mg/kg	0.2	1
CR-MPB2	Cadmium	mg/kg	0.13	1
CR-MPB2	Calcium	mg/kg	3790	1
CR-MPB2	Chromium	mg/kg	12.4	1
CR-MPB2	Cobalt	mg/kg	5.56	1
CR-MPB2	Copper	mg/kg	14.1	1
CR-MPB2	Iron	mg/kg	15700	1
CR-MPB2	Lead	mg/kg	5.74	1
CR-MPB2	Magnesium	mg/kg	4060	1
CR-MPB2	Manganese	mg/kg	209	1
CR-MPB2	Mercury	mg/kg	0.005	1
CR-MPB2	Nickel	mg/kg	15	1
CR-MPB2	Potassium	mg/kg	1030	1
CR-MPB2	Selenium	mg/kg	0.2	0
CR-MPB2	Silver	mg/kg	0.072	1
CR-MPB2	Sodium	mg/kg	97	1
CR-MPB2	Thallium	mg/kg	0.114	1
CR-MPB2	Vanadium	mg/kg	13.5	1
CR-MPB2	Zinc	mg/kg	40.4	1
CR-MPB3	Aluminum	mg/kg	14000	1
CR-MPB3	Antimony	mg/kg	0.39	1
CR-MPB3	Arsenic	mg/kg	9.1	1
CR-MPB3	Barium	mg/kg	109	1
CR-MPB3	Beryllium	mg/kg	0.51	1
CR-MPB3	Cadmium	mg/kg	0.164	1
CR-MPB3	Calcium	mg/kg	2520	1
CR-MPB3	Chromium	mg/kg	22.8	1
CR-MPB3	Cobalt	mg/kg	10.8	1
CR-MPB3	Copper	mg/kg	29.9	1
CR-MPB3	Iron	mg/kg	25300	1
CR-MPB3	Lead	mg/kg	10.8	1
CR-MPB3	Magnesium	mg/kg	6230	1
CR-MPB3	Manganese	mg/kg	334	1
CR-MPB3	Mercury	mg/kg	0.007	1
CR-MPB3	Nickel	mg/kg	27.4	1
CR-MPB3	Potassium	mg/kg	2730	1
CR-MPB3	Selenium	mg/kg	0.2	0
CR-MPB3	Silver	mg/kg	0.101	1
CR-MPB3	Sodium	mg/kg	81	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MPB3	Thallium	mg/kg	0.118	1
CR-MPB3	Vanadium	mg/kg	25.1	1
CR-MPB3	Zinc	mg/kg	61.6	1
CR-MPC1	Aluminum	mg/kg	7500	1
CR-MPC1	Antimony	mg/kg	0.242	1
CR-MPC1	Arsenic	mg/kg	4.33	1
CR-MPC1	Barium	mg/kg	76.2	1
CR-MPC1	Beryllium	mg/kg	0.23	1
CR-MPC1	Cadmium	mg/kg	0.106	1
CR-MPC1	Calcium	mg/kg	4180	1
CR-MPC1	Chromium	mg/kg	12.4	1
CR-MPC1	Cobalt	mg/kg	6.56	1
CR-MPC1	Copper	mg/kg	16.9	1
CR-MPC1	Iron	mg/kg	16000	1
CR-MPC1	Lead	mg/kg	5.48	1
CR-MPC1	Magnesium	mg/kg	4600	1
CR-MPC1	Manganese	mg/kg	263	1
CR-MPC1	Mercury	mg/kg	0.004	1
CR-MPC1	Nickel	mg/kg	17	1
CR-MPC1	Potassium	mg/kg	1200	1
CR-MPC1	Selenium	mg/kg	0.2	0
CR-MPC1	Silver	mg/kg	0.064	1
CR-MPC1	Sodium	mg/kg	126	1
CR-MPC1	Thallium	mg/kg	0.076	0
CR-MPC1	Vanadium	mg/kg	14.8	1
CR-MPC1	Zinc	mg/kg	43.7	1
CR-MPC2	Aluminum	mg/kg	6550	1
CR-MPC2	Antimony	mg/kg	0.253	1
CR-MPC2	Arsenic	mg/kg	3.66	1
CR-MPC2	Barium	mg/kg	67.6	1
CR-MPC2	Beryllium	mg/kg	0.2	1
CR-MPC2	Cadmium	mg/kg	0.101	1
CR-MPC2	Calcium	mg/kg	3280	1
CR-MPC2	Chromium	mg/kg	13.7	1
CR-MPC2	Cobalt	mg/kg	5.61	1
CR-MPC2	Copper	mg/kg	13.7	1
CR-MPC2	Iron	mg/kg	15000	1
CR-MPC2	Lead	mg/kg	4.94	1
CR-MPC2	Magnesium	mg/kg	4090	1
CR-MPC2	Manganese	mg/kg	204	1
CR-MPC2	Mercury	mg/kg	0.006	1
CR-MPC2	Nickel	mg/kg	16.2	1
CR-MPC2	Potassium	mg/kg	1040	1
CR-MPC2	Selenium	mg/kg	0.2	0
CR-MPC2	Silver	mg/kg	0.075	1
CR-MPC2	Sodium	mg/kg	128	1
CR-MPC2	Thallium	mg/kg	0.075	0
CR-MPC2	Vanadium	mg/kg	13.7	1
CR-MPC2	Zinc	mg/kg	36.2	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MPC3	Aluminum	mg/kg	6720	1
CR-MPC3	Antimony	mg/kg	0.192	1
CR-MPC3	Arsenic	mg/kg	4.06	1
CR-MPC3	Barium	mg/kg	65.9	1
CR-MPC3	Beryllium	mg/kg	0.19	1
CR-MPC3	Cadmium	mg/kg	0.097	1
CR-MPC3	Calcium	mg/kg	3740	1
CR-MPC3	Chromium	mg/kg	12.4	1
CR-MPC3	Cobalt	mg/kg	5.54	1
CR-MPC3	Copper	mg/kg	14	1
CR-MPC3	Iron	mg/kg	15000	1
CR-MPC3	Lead	mg/kg	5.58	1
CR-MPC3	Magnesium	mg/kg	4190	1
CR-MPC3	Manganese	mg/kg	211	1
CR-MPC3	Mercury	mg/kg	0.006	1
CR-MPC3	Nickel	mg/kg	14.9	1
CR-MPC3	Potassium	mg/kg	978	1
CR-MPC3	Selenium	mg/kg	0.2	0
CR-MPC3	Silver	mg/kg	0.065	1
CR-MPC3	Sodium	mg/kg	96	1
CR-MPC3	Thallium	mg/kg	0.071	0
CR-MPC3	Vanadium	mg/kg	13.9	1
CR-MPC3	Zinc	mg/kg	37.3	1
CR-MPD1	Aluminum	mg/kg	6050	1
CR-MPD1	Antimony	mg/kg	0.189	1
CR-MPD1	Arsenic	mg/kg	3.97	1
CR-MPD1	Barium	mg/kg	55.1	1
CR-MPD1	Beryllium	mg/kg	0.17	1
CR-MPD1	Cadmium	mg/kg	0.103	1
CR-MPD1	Calcium	mg/kg	2710	1
CR-MPD1	Chromium	mg/kg	12.7	1
CR-MPD1	Cobalt	mg/kg	5.12	1
CR-MPD1	Copper	mg/kg	12.7	1
CR-MPD1	Iron	mg/kg	13800	1
CR-MPD1	Lead	mg/kg	5.23	1
CR-MPD1	Magnesium	mg/kg	3850	1
CR-MPD1	Manganese	mg/kg	190	1
CR-MPD1	Mercury	mg/kg	0.003	1
CR-MPD1	Nickel	mg/kg	14.5	1
CR-MPD1	Potassium	mg/kg	985	1
CR-MPD1	Selenium	mg/kg	0.2	0
CR-MPD1	Silver	mg/kg	0.072	1
CR-MPD1	Sodium	mg/kg	83	1
CR-MPD1	Thallium	mg/kg	0.096	1
CR-MPD1	Vanadium	mg/kg	13.4	1
CR-MPD1	Zinc	mg/kg	35.9	1
CR-MPD2	Aluminum	mg/kg	5620	1
CR-MPD2	Antimony	mg/kg	0.196	1
CR-MPD2	Arsenic	mg/kg	4.13	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MPD2	Barium	mg/kg	51.2	1
CR-MPD2	Beryllium	mg/kg	0.17	1
CR-MPD2	Cadmium	mg/kg	0.133	1
CR-MPD2	Calcium	mg/kg	1960	1
CR-MPD2	Chromium	mg/kg	10.5	1
CR-MPD2	Cobalt	mg/kg	4.82	1
CR-MPD2	Copper	mg/kg	13.1	1
CR-MPD2	Iron	mg/kg	13900	1
CR-MPD2	Lead	mg/kg	4.87	1
CR-MPD2	Magnesium	mg/kg	3430	1
CR-MPD2	Manganese	mg/kg	201	1
CR-MPD2	Mercury	mg/kg	0.004	1
CR-MPD2	Nickel	mg/kg	12.9	1
CR-MPD2	Potassium	mg/kg	883	1
CR-MPD2	Selenium	mg/kg	0.2	0
CR-MPD2	Silver	mg/kg	0.053	1
CR-MPD2	Sodium	mg/kg	107	1
CR-MPD2	Thallium	mg/kg	0.127	1
CR-MPD2	Vanadium	mg/kg	12.1	1
CR-MPD2	Zinc	mg/kg	38.1	1
CR-MPD3	Aluminum	mg/kg	6320	1
CR-MPD3	Antimony	mg/kg	0.189	1
CR-MPD3	Arsenic	mg/kg	4.12	1
CR-MPD3	Barium	mg/kg	71.1	1
CR-MPD3	Beryllium	mg/kg	0.21	1
CR-MPD3	Cadmium	mg/kg	0.172	1
CR-MPD3	Calcium	mg/kg	2460	1
CR-MPD3	Chromium	mg/kg	12.9	1
CR-MPD3	Cobalt	mg/kg	5.77	1
CR-MPD3	Copper	mg/kg	13.2	1
CR-MPD3	Iron	mg/kg	14400	1
CR-MPD3	Lead	mg/kg	5.55	1
CR-MPD3	Magnesium	mg/kg	3620	1
CR-MPD3	Manganese	mg/kg	284	1
CR-MPD3	Mercury	mg/kg	0.005	1
CR-MPD3	Nickel	mg/kg	13.4	1
CR-MPD3	Potassium	mg/kg	1050	1
CR-MPD3	Selenium	mg/kg	0.2	0
CR-MPD3	Silver	mg/kg	0.053	1
CR-MPD3	Sodium	mg/kg	104	1
CR-MPD3	Thallium	mg/kg	0.104	1
CR-MPD3	Vanadium	mg/kg	13.7	1
CR-MPD3	Zinc	mg/kg	45.7	1
CR-MPE1	Aluminum	mg/kg	6130	1
CR-MPE1	Antimony	mg/kg	0.214	1
CR-MPE1	Arsenic	mg/kg	5.22	1
CR-MPE1	Barium	mg/kg	64.7	1
CR-MPE1	Beryllium	mg/kg	0.2	1
CR-MPE1	Cadmium	mg/kg	0.089	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MPE1	Calcium	mg/kg	4260	1
CR-MPE1	Chromium	mg/kg	12.2	1
CR-MPE1	Cobalt	mg/kg	5.65	1
CR-MPE1	Copper	mg/kg	12.9	1
CR-MPE1	Iron	mg/kg	13800	1
CR-MPE1	Lead	mg/kg	5.45	1
CR-MPE1	Magnesium	mg/kg	3810	1
CR-MPE1	Manganese	mg/kg	225	1
CR-MPE1	Mercury	mg/kg	0.004	1
CR-MPE1	Nickel	mg/kg	14.3	1
CR-MPE1	Potassium	mg/kg	980	1
CR-MPE1	Selenium	mg/kg	0.2	0
CR-MPE1	Silver	mg/kg	0.064	1
CR-MPE1	Sodium	mg/kg	119	1
CR-MPE1	Thallium	mg/kg	0.086	1
CR-MPE1	Vanadium	mg/kg	13.7	1
CR-MPE1	Zinc	mg/kg	36.8	1
CR-MPE2	Aluminum	mg/kg	6730	1
CR-MPE2	Antimony	mg/kg	0.235	1
CR-MPE2	Arsenic	mg/kg	5.58	1
CR-MPE2	Barium	mg/kg	72	1
CR-MPE2	Beryllium	mg/kg	0.21	1
CR-MPE2	Cadmium	mg/kg	0.14	1
CR-MPE2	Calcium	mg/kg	4520	1
CR-MPE2	Chromium	mg/kg	12.9	1
CR-MPE2	Cobalt	mg/kg	6.25	1
CR-MPE2	Copper	mg/kg	14.9	1
CR-MPE2	Iron	mg/kg	15200	1
CR-MPE2	Lead	mg/kg	6.71	1
CR-MPE2	Magnesium	mg/kg	4000	1
CR-MPE2	Manganese	mg/kg	233	1
CR-MPE2	Mercury	mg/kg	0.003	1
CR-MPE2	Nickel	mg/kg	15.3	1
CR-MPE2	Potassium	mg/kg	1100	1
CR-MPE2	Selenium	mg/kg	0.2	0
CR-MPE2	Silver	mg/kg	0.082	1
CR-MPE2	Sodium	mg/kg	124	1
CR-MPE2	Thallium	mg/kg	0.097	1
CR-MPE2	Vanadium	mg/kg	14.1	1
CR-MPE2	Zinc	mg/kg	40.9	1
CR-MPE3	Aluminum	mg/kg	6750	1
CR-MPE3	Antimony	mg/kg	0.225	1
CR-MPE3	Arsenic	mg/kg	8.94	1
CR-MPE3	Barium	mg/kg	74.1	1
CR-MPE3	Beryllium	mg/kg	0.23	1
CR-MPE3	Cadmium	mg/kg	0.12	1
CR-MPE3	Calcium	mg/kg	4250	1
CR-MPE3	Chromium	mg/kg	14	1
CR-MPE3	Cobalt	mg/kg	6.63	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-MPE3	Copper	mg/kg	15.1	1
CR-MPE3	Iron	mg/kg	16600	1
CR-MPE3	Lead	mg/kg	6.75	1
CR-MPE3	Magnesium	mg/kg	4140	1
CR-MPE3	Manganese	mg/kg	214	1
CR-MPE3	Mercury	mg/kg	0.007	1
CR-MPE3	Nickel	mg/kg	16	1
CR-MPE3	Potassium	mg/kg	1120	1
CR-MPE3	Selenium	mg/kg	0.2	0
CR-MPE3	Silver	mg/kg	0.07	1
CR-MPE3	Sodium	mg/kg	117	1
CR-MPE3	Thallium	mg/kg	0.115	1
CR-MPE3	Vanadium	mg/kg	14.8	1
CR-MPE3	Zinc	mg/kg	41.7	1
CR-NAA1	Aluminum	mg/kg	6710	1
CR-NAA1	Antimony	mg/kg	0.158	1
CR-NAA1	Arsenic	mg/kg	3.12	1
CR-NAA1	Barium	mg/kg	84.2	1
CR-NAA1	Beryllium	mg/kg	0.26	1
CR-NAA1	Cadmium	mg/kg	0.517	1
CR-NAA1	Calcium	mg/kg	1840	1
CR-NAA1	Chromium	mg/kg	13.8	1
CR-NAA1	Cobalt	mg/kg	5.12	1
CR-NAA1	Copper	mg/kg	10.2	1
CR-NAA1	Iron	mg/kg	13000	1
CR-NAA1	Lead	mg/kg	13.5	1
CR-NAA1	Magnesium	mg/kg	2640	1
CR-NAA1	Manganese	mg/kg	170	1
CR-NAA1	Mercury	mg/kg	0.009	1
CR-NAA1	Nickel	mg/kg	11.2	1
CR-NAA1	Potassium	mg/kg	1160	1
CR-NAA1	Selenium	mg/kg	0.2	0
CR-NAA1	Silver	mg/kg	0.039	1
CR-NAA1	Sodium	mg/kg	57	1
CR-NAA1	Thallium	mg/kg	0.285	1
CR-NAA1	Vanadium	mg/kg	15.7	1
CR-NAA1	Zinc	mg/kg	95.8	1
CR-NAA2	Aluminum	mg/kg	7630	1
CR-NAA2	Antimony	mg/kg	0.181	1
CR-NAA2	Arsenic	mg/kg	4.21	1
CR-NAA2	Barium	mg/kg	89.2	1
CR-NAA2	Beryllium	mg/kg	0.29	1
CR-NAA2	Cadmium	mg/kg	0.303	1
CR-NAA2	Calcium	mg/kg	1820	1
CR-NAA2	Chromium	mg/kg	14.5	1
CR-NAA2	Cobalt	mg/kg	5.65	1
CR-NAA2	Copper	mg/kg	10	1
CR-NAA2	Iron	mg/kg	16100	1
CR-NAA2	Lead	mg/kg	11.5	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-NAA2	Magnesium	mg/kg	3040	1
CR-NAA2	Manganese	mg/kg	265	1
CR-NAA2	Mercury	mg/kg	0.005	1
CR-NAA2	Nickel	mg/kg	13.1	1
CR-NAA2	Potassium	mg/kg	1290	1
CR-NAA2	Selenium	mg/kg	0.2	0
CR-NAA2	Silver	mg/kg	0.031	1
CR-NAA2	Sodium	mg/kg	51	1
CR-NAA2	Thallium	mg/kg	0.213	1
CR-NAA2	Vanadium	mg/kg	17.4	1
CR-NAA2	Zinc	mg/kg	80	1
CR-NAA3	Aluminum	mg/kg	9090	1
CR-NAA3	Antimony	mg/kg	0.213	1
CR-NAA3	Arsenic	mg/kg	5.84	1
CR-NAA3	Barium	mg/kg	85.8	1
CR-NAA3	Beryllium	mg/kg	0.29	1
CR-NAA3	Cadmium	mg/kg	0.082	1
CR-NAA3	Calcium	mg/kg	2650	1
CR-NAA3	Chromium	mg/kg	17.1	1
CR-NAA3	Cobalt	mg/kg	6.64	1
CR-NAA3	Copper	mg/kg	16.6	1
CR-NAA3	Iron	mg/kg	17200	1
CR-NAA3	Lead	mg/kg	7.48	1
CR-NAA3	Magnesium	mg/kg	3540	1
CR-NAA3	Manganese	mg/kg	275	1
CR-NAA3	Mercury	mg/kg	0.005	1
CR-NAA3	Nickel	mg/kg	16.4	1
CR-NAA3	Potassium	mg/kg	1360	1
CR-NAA3	Selenium	mg/kg	0.2	0
CR-NAA3	Silver	mg/kg	0.058	1
CR-NAA3	Sodium	mg/kg	75	1
CR-NAA3	Thallium	mg/kg	0.072	1
CR-NAA3	Vanadium	mg/kg	18.3	1
CR-NAA3	Zinc	mg/kg	42.4	1
CR-NAB1	Aluminum	mg/kg	5370	1
CR-NAB1	Antimony	mg/kg	0.236	1
CR-NAB1	Arsenic	mg/kg	3.84	1
CR-NAB1	Barium	mg/kg	54.7	1
CR-NAB1	Beryllium	mg/kg	0.17	1
CR-NAB1	Cadmium	mg/kg	0.091	1
CR-NAB1	Calcium	mg/kg	2230	1
CR-NAB1	Chromium	mg/kg	11	1
CR-NAB1	Cobalt	mg/kg	5.32	1
CR-NAB1	Copper	mg/kg	10.6	1
CR-NAB1	Iron	mg/kg	14400	1
CR-NAB1	Lead	mg/kg	5.28	1
CR-NAB1	Magnesium	mg/kg	3160	1
CR-NAB1	Manganese	mg/kg	214	1
CR-NAB1	Mercury	mg/kg	0.006	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-NAB1	Nickel	mg/kg	13.6	1
CR-NAB1	Potassium	mg/kg	789	1
CR-NAB1	Selenium	mg/kg	0.2	0
CR-NAB1	Silver	mg/kg	0.048	1
CR-NAB1	Sodium	mg/kg	41	1
CR-NAB1	Thallium	mg/kg	0.058	1
CR-NAB1	Vanadium	mg/kg	12.8	1
CR-NAB1	Zinc	mg/kg	37.8	1
CR-NAB2	Aluminum	mg/kg	6850	1
CR-NAB2	Antimony	mg/kg	0.269	1
CR-NAB2	Arsenic	mg/kg	5.41	1
CR-NAB2	Barium	mg/kg	84.9	1
CR-NAB2	Beryllium	mg/kg	0.26	1
CR-NAB2	Cadmium	mg/kg	0.201	1
CR-NAB2	Calcium	mg/kg	2450	1
CR-NAB2	Chromium	mg/kg	14.9	1
CR-NAB2	Cobalt	mg/kg	8.47	1
CR-NAB2	Copper	mg/kg	15.5	1
CR-NAB2	Iron	mg/kg	16600	1
CR-NAB2	Lead	mg/kg	9.43	1
CR-NAB2	Magnesium	mg/kg	3520	1
CR-NAB2	Manganese	mg/kg	316	1
CR-NAB2	Mercury	mg/kg	0.008	1
CR-NAB2	Nickel	mg/kg	17.1	1
CR-NAB2	Potassium	mg/kg	1120	1
CR-NAB2	Selenium	mg/kg	0.2	0
CR-NAB2	Silver	mg/kg	0.058	1
CR-NAB2	Sodium	mg/kg	43	1
CR-NAB2	Thallium	mg/kg	0.144	1
CR-NAB2	Vanadium	mg/kg	17.8	1
CR-NAB2	Zinc	mg/kg	52.7	1
CR-NAB3	Aluminum	mg/kg	6110	1
CR-NAB3	Antimony	mg/kg	0.201	1
CR-NAB3	Arsenic	mg/kg	4.35	1
CR-NAB3	Barium	mg/kg	72.1	1
CR-NAB3	Beryllium	mg/kg	0.24	1
CR-NAB3	Cadmium	mg/kg	0.66	1
CR-NAB3	Calcium	mg/kg	1820	1
CR-NAB3	Chromium	mg/kg	14.7	1
CR-NAB3	Cobalt	mg/kg	5.81	1
CR-NAB3	Copper	mg/kg	11.4	1
CR-NAB3	Iron	mg/kg	14000	1
CR-NAB3	Lead	mg/kg	17.4	1
CR-NAB3	Magnesium	mg/kg	2730	1
CR-NAB3	Manganese	mg/kg	148	1
CR-NAB3	Mercury	mg/kg	0.012	1
CR-NAB3	Nickel	mg/kg	12.6	1
CR-NAB3	Potassium	mg/kg	1240	1
CR-NAB3	Selenium	mg/kg	0.2	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-NAB3	Silver	mg/kg	0.047	1
CR-NAB3	Sodium	mg/kg	43	1
CR-NAB3	Thallium	mg/kg	0.351	1
CR-NAB3	Vanadium	mg/kg	16.9	1
CR-NAB3	Zinc	mg/kg	102	1
CR-NAC1	Aluminum	mg/kg	6610	1
CR-NAC1	Antimony	mg/kg	0.185	1
CR-NAC1	Arsenic	mg/kg	5.08	1
CR-NAC1	Barium	mg/kg	90.3	1
CR-NAC1	Beryllium	mg/kg	0.24	1
CR-NAC1	Cadmium	mg/kg	0.175	1
CR-NAC1	Calcium	mg/kg	2440	1
CR-NAC1	Chromium	mg/kg	14.7	1
CR-NAC1	Cobalt	mg/kg	6.55	1
CR-NAC1	Copper	mg/kg	13.6	1
CR-NAC1	Iron	mg/kg	14600	1
CR-NAC1	Lead	mg/kg	8.07	1
CR-NAC1	Magnesium	mg/kg	2940	1
CR-NAC1	Manganese	mg/kg	197	1
CR-NAC1	Mercury	mg/kg	0.005	1
CR-NAC1	Nickel	mg/kg	14	1
CR-NAC1	Potassium	mg/kg	1110	1
CR-NAC1	Selenium	mg/kg	0.2	0
CR-NAC1	Silver	mg/kg	0.045	1
CR-NAC1	Sodium	mg/kg	68	1
CR-NAC1	Thallium	mg/kg	0.161	1
CR-NAC1	Vanadium	mg/kg	16.9	1
CR-NAC1	Zinc	mg/kg	47.8	1
CR-NAC2-1	Aluminum	mg/kg	7190	1
CR-NAC2-1	Antimony	mg/kg	0.1625	1
CR-NAC2-1	Arsenic	mg/kg	4.385	1
CR-NAC2-1	Barium	mg/kg	87.1	1
CR-NAC2-1	Beryllium	mg/kg	0.26	1
CR-NAC2-1	Cadmium	mg/kg	0.7325	1
CR-NAC2-1	Calcium	mg/kg	2245	1
CR-NAC2-1	Chromium	mg/kg	15.2	1
CR-NAC2-1	Cobalt	mg/kg	6.28	1
CR-NAC2-1	Copper	mg/kg	12.45	1
CR-NAC2-1	Iron	mg/kg	15200	1
CR-NAC2-1	Lead	mg/kg	16.7	1
CR-NAC2-1	Magnesium	mg/kg	3165	1
CR-NAC2-1	Manganese	mg/kg	173	1
CR-NAC2-1	Mercury	mg/kg	0.0185	1
CR-NAC2-1	Nickel	mg/kg	14.1	1
CR-NAC2-1	Potassium	mg/kg	1170	1
CR-NAC2-1	Selenium	mg/kg	0.2	0
CR-NAC2-1	Silver	mg/kg	0.0425	1
CR-NAC2-1	Sodium	mg/kg	64.5	1
CR-NAC2-1	Thallium	mg/kg	0.3285	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-NAC2-1	Vanadium	mg/kg	16.85	1
CR-NAC2-1	Zinc	mg/kg	118.5	1
CR-NAC3	Aluminum	mg/kg	8270	1
CR-NAC3	Antimony	mg/kg	0.202	1
CR-NAC3	Arsenic	mg/kg	4.94	1
CR-NAC3	Barium	mg/kg	84.5	1
CR-NAC3	Beryllium	mg/kg	0.31	1
CR-NAC3	Cadmium	mg/kg	0.167	1
CR-NAC3	Calcium	mg/kg	1780	1
CR-NAC3	Chromium	mg/kg	17.3	1
CR-NAC3	Cobalt	mg/kg	6.45	1
CR-NAC3	Copper	mg/kg	12.7	1
CR-NAC3	Iron	mg/kg	15500	1
CR-NAC3	Lead	mg/kg	8.6	1
CR-NAC3	Magnesium	mg/kg	3460	1
CR-NAC3	Manganese	mg/kg	264	1
CR-NAC3	Mercury	mg/kg	0.005	1
CR-NAC3	Nickel	mg/kg	13.6	1
CR-NAC3	Potassium	mg/kg	1730	1
CR-NAC3	Selenium	mg/kg	0.2	0
CR-NAC3	Silver	mg/kg	0.032	1
CR-NAC3	Sodium	mg/kg	62	1
CR-NAC3	Thallium	mg/kg	0.099	1
CR-NAC3	Vanadium	mg/kg	19.8	1
CR-NAC3	Zinc	mg/kg	44	1
CR-NAD2	Aluminum	mg/kg	8460	1
CR-NAD2	Antimony	mg/kg	0.12	1
CR-NAD2	Arsenic	mg/kg	2.54	1
CR-NAD2	Barium	mg/kg	114	1
CR-NAD2	Beryllium	mg/kg	0.31	1
CR-NAD2	Cadmium	mg/kg	0.189	1
CR-NAD2	Calcium	mg/kg	1370	1
CR-NAD2	Chromium	mg/kg	9.92	1
CR-NAD2	Cobalt	mg/kg	4.38	1
CR-NAD2	Copper	mg/kg	10.4	1
CR-NAD2	Iron	mg/kg	12700	1
CR-NAD2	Lead	mg/kg	9.01	1
CR-NAD2	Magnesium	mg/kg	2580	1
CR-NAD2	Manganese	mg/kg	244	1
CR-NAD2	Mercury	mg/kg	0.005	1
CR-NAD2	Nickel	mg/kg	8.5	1
CR-NAD2	Potassium	mg/kg	1430	1
CR-NAD2	Selenium	mg/kg	0.2	0
CR-NAD2	Silver	mg/kg	0.027	1
CR-NAD2	Sodium	mg/kg	69	1
CR-NAD2	Thallium	mg/kg	0.118	1
CR-NAD2	Vanadium	mg/kg	13.4	1
CR-NAD2	Zinc	mg/kg	45	1
CR-NAD3	Aluminum	mg/kg	10600	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-NAD3	Antimony	mg/kg	0.206	1
CR-NAD3	Arsenic	mg/kg	5	1
CR-NAD3	Barium	mg/kg	114	1
CR-NAD3	Beryllium	mg/kg	0.33	1
CR-NAD3	Cadmium	mg/kg	0.099	1
CR-NAD3	Calcium	mg/kg	2010	1
CR-NAD3	Chromium	mg/kg	14.9	1
CR-NAD3	Cobalt	mg/kg	6.46	1
CR-NAD3	Copper	mg/kg	17.4	1
CR-NAD3	Iron	mg/kg	14400	1
CR-NAD3	Lead	mg/kg	8.61	1
CR-NAD3	Magnesium	mg/kg	3250	1
CR-NAD3	Manganese	mg/kg	254	1
CR-NAD3	Mercury	mg/kg	0.006	1
CR-NAD3	Nickel	mg/kg	13	1
CR-NAD3	Potassium	mg/kg	1660	1
CR-NAD3	Selenium	mg/kg	0.2	0
CR-NAD3	Silver	mg/kg	0.064	1
CR-NAD3	Sodium	mg/kg	109	1
CR-NAD3	Thallium	mg/kg	0.103	1
CR-NAD3	Vanadium	mg/kg	18.2	1
CR-NAD3	Zinc	mg/kg	37.6	1
CR-NAE1	Aluminum	mg/kg	6810	1
CR-NAE1	Antimony	mg/kg	0.172	1
CR-NAE1	Arsenic	mg/kg	4.08	1
CR-NAE1	Barium	mg/kg	84.4	1
CR-NAE1	Beryllium	mg/kg	0.25	1
CR-NAE1	Cadmium	mg/kg	0.172	1
CR-NAE1	Calcium	mg/kg	1630	1
CR-NAE1	Chromium	mg/kg	12.8	1
CR-NAE1	Cobalt	mg/kg	5.9	1
CR-NAE1	Copper	mg/kg	12	1
CR-NAE1	Iron	mg/kg	13400	1
CR-NAE1	Lead	mg/kg	8.45	1
CR-NAE1	Magnesium	mg/kg	2990	1
CR-NAE1	Manganese	mg/kg	231	1
CR-NAE1	Mercury	mg/kg	0.002	1
CR-NAE1	Nickel	mg/kg	12.2	1
CR-NAE1	Potassium	mg/kg	1170	1
CR-NAE1	Selenium	mg/kg	0.2	0
CR-NAE1	Silver	mg/kg	0.021	1
CR-NAE1	Sodium	mg/kg	64	1
CR-NAE1	Thallium	mg/kg	0.161	1
CR-NAE1	Vanadium	mg/kg	16.1	1
CR-NAE1	Zinc	mg/kg	48.5	1
CR-NAE2	Aluminum	mg/kg	9270	1
CR-NAE2	Antimony	mg/kg	0.214	1
CR-NAE2	Arsenic	mg/kg	6.44	1
CR-NAE2	Barium	mg/kg	113	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-NAE2	Beryllium	mg/kg	0.33	1
CR-NAE2	Cadmium	mg/kg	0.143	1
CR-NAE2	Calcium	mg/kg	2330	1
CR-NAE2	Chromium	mg/kg	16.8	1
CR-NAE2	Cobalt	mg/kg	7.54	1
CR-NAE2	Copper	mg/kg	15.1	1
CR-NAE2	Iron	mg/kg	16200	1
CR-NAE2	Lead	mg/kg	9.25	1
CR-NAE2	Magnesium	mg/kg	3460	1
CR-NAE2	Manganese	mg/kg	352	1
CR-NAE2	Mercury	mg/kg	0.004	1
CR-NAE2	Nickel	mg/kg	14.1	1
CR-NAE2	Potassium	mg/kg	1470	1
CR-NAE2	Selenium	mg/kg	0.2	0
CR-NAE2	Silver	mg/kg	0.034	1
CR-NAE2	Sodium	mg/kg	96	1
CR-NAE2	Thallium	mg/kg	0.117	1
CR-NAE2	Vanadium	mg/kg	19.8	1
CR-NAE2	Zinc	mg/kg	45.2	1
CR-NAE3	Aluminum	mg/kg	10700	1
CR-NAE3	Antimony	mg/kg	0.274	1
CR-NAE3	Arsenic	mg/kg	7.4	1
CR-NAE3	Barium	mg/kg	108	1
CR-NAE3	Beryllium	mg/kg	0.33	1
CR-NAE3	Cadmium	mg/kg	0.108	1
CR-NAE3	Calcium	mg/kg	2830	1
CR-NAE3	Chromium	mg/kg	18.8	1
CR-NAE3	Cobalt	mg/kg	8.2	1
CR-NAE3	Copper	mg/kg	20.7	1
CR-NAE3	Iron	mg/kg	18400	1
CR-NAE3	Lead	mg/kg	9.08	1
CR-NAE3	Magnesium	mg/kg	4170	1
CR-NAE3	Manganese	mg/kg	336	1
CR-NAE3	Mercury	mg/kg	0.009	1
CR-NAE3	Nickel	mg/kg	18.8	1
CR-NAE3	Potassium	mg/kg	1710	1
CR-NAE3	Selenium	mg/kg	0.2	0
CR-NAE3	Silver	mg/kg	0.085	1
CR-NAE3	Sodium	mg/kg	106	1
CR-NAE3	Thallium	mg/kg	0.086	1
CR-NAE3	Vanadium	mg/kg	20.4	1
CR-NAE3	Zinc	mg/kg	43.7	1
CR-NPA3	Aluminum	mg/kg	2860	1
CR-NPA3	Antimony	mg/kg	0.045	1
CR-NPA3	Arsenic	mg/kg	0.69	1
CR-NPA3	Barium	mg/kg	39.8	1
CR-NPA3	Beryllium	mg/kg	0.15	1
CR-NPA3	Cadmium	mg/kg	0.057	1
CR-NPA3	Calcium	mg/kg	1700	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-NPA3	Chromium	mg/kg	4.9	1
CR-NPA3	Cobalt	mg/kg	3.1	1
CR-NPA3	Copper	mg/kg	6.6	1
CR-NPA3	Iron	mg/kg	6150	1
CR-NPA3	Lead	mg/kg	2.1	1
CR-NPA3	Magnesium	mg/kg	1670	1
CR-NPA3	Manganese	mg/kg	92.2	1
CR-NPA3	Mercury	mg/kg	0.002	1
CR-NPA3	Nickel	mg/kg	6.66	1
CR-NPA3	Potassium	mg/kg	595	1
CR-NPA3	Selenium	mg/kg	0.04	0
CR-NPA3	Silver	mg/kg	0.035	1
CR-NPA3	Sodium	mg/kg	154	1
CR-NPA3	Thallium	mg/kg	0.041	1
CR-NPA3	Vanadium	mg/kg	7.82	1
CR-NPA3	Zinc	mg/kg	18.8	1
CR-NPB3	Aluminum	mg/kg	2830	1
CR-NPB3	Antimony	mg/kg	0.032	1
CR-NPB3	Arsenic	mg/kg	0.81	1
CR-NPB3	Barium	mg/kg	36.8	1
CR-NPB3	Beryllium	mg/kg	0.11	1
CR-NPB3	Cadmium	mg/kg	0.119	1
CR-NPB3	Calcium	mg/kg	1660	1
CR-NPB3	Chromium	mg/kg	4.87	1
CR-NPB3	Cobalt	mg/kg	2.3	1
CR-NPB3	Copper	mg/kg	15.6	1
CR-NPB3	Iron	mg/kg	5860	1
CR-NPB3	Lead	mg/kg	5.69	1
CR-NPB3	Magnesium	mg/kg	1590	1
CR-NPB3	Manganese	mg/kg	90.3	1
CR-NPB3	Mercury	mg/kg	0.005	1
CR-NPB3	Nickel	mg/kg	5.76	1
CR-NPB3	Potassium	mg/kg	536	1
CR-NPB3	Selenium	mg/kg	0.04	0
CR-NPB3	Silver	mg/kg	0.061	1
CR-NPB3	Sodium	mg/kg	148	1
CR-NPB3	Thallium	mg/kg	0.044	1
CR-NPB3	Vanadium	mg/kg	8.46	1
CR-NPB3	Zinc	mg/kg	46.3	1
CR-NPC3	Aluminum	mg/kg	2940	1
CR-NPC3	Antimony	mg/kg	0.016	1
CR-NPC3	Arsenic	mg/kg	0.76	1
CR-NPC3	Barium	mg/kg	32.7	1
CR-NPC3	Beryllium	mg/kg	0.13	1
CR-NPC3	Cadmium	mg/kg	0.062	1
CR-NPC3	Calcium	mg/kg	1750	1
CR-NPC3	Chromium	mg/kg	5.46	1
CR-NPC3	Cobalt	mg/kg	2.5	1
CR-NPC3	Copper	mg/kg	7.5	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-NPC3	Iron	mg/kg	6400	1
CR-NPC3	Lead	mg/kg	2.31	1
CR-NPC3	Magnesium	mg/kg	1630	1
CR-NPC3	Manganese	mg/kg	94.4	1
CR-NPC3	Mercury	mg/kg	0.002	1
CR-NPC3	Nickel	mg/kg	5.35	1
CR-NPC3	Potassium	mg/kg	559	1
CR-NPC3	Selenium	mg/kg	0.04	0
CR-NPC3	Silver	mg/kg	0.04	1
CR-NPC3	Sodium	mg/kg	142	1
CR-NPC3	Thallium	mg/kg	0.044	1
CR-NPC3	Vanadium	mg/kg	8.37	1
CR-NPC3	Zinc	mg/kg	18.7	1
CR-NPD3	Aluminum	mg/kg	2970	1
CR-NPD3	Antimony	mg/kg	0.028	1
CR-NPD3	Arsenic	mg/kg	0.74	1
CR-NPD3	Barium	mg/kg	33	1
CR-NPD3	Beryllium	mg/kg	0.11	1
CR-NPD3	Cadmium	mg/kg	0.059	1
CR-NPD3	Calcium	mg/kg	1700	1
CR-NPD3	Chromium	mg/kg	5.34	1
CR-NPD3	Cobalt	mg/kg	2.1	1
CR-NPD3	Copper	mg/kg	6.7	1
CR-NPD3	Iron	mg/kg	6440	1
CR-NPD3	Lead	mg/kg	2.2	1
CR-NPD3	Magnesium	mg/kg	1590	1
CR-NPD3	Manganese	mg/kg	95.5	1
CR-NPD3	Mercury	mg/kg	0.003	1
CR-NPD3	Nickel	mg/kg	5.66	1
CR-NPD3	Potassium	mg/kg	529	1
CR-NPD3	Selenium	mg/kg	0.03	0
CR-NPD3	Silver	mg/kg	0.046	1
CR-NPD3	Sodium	mg/kg	148	1
CR-NPD3	Thallium	mg/kg	0.043	1
CR-NPD3	Vanadium	mg/kg	8.81	1
CR-NPD3	Zinc	mg/kg	18.4	1
CR-NPE2	Aluminum	mg/kg	2940	1
CR-NPE2	Antimony	mg/kg	0.056	1
CR-NPE2	Arsenic	mg/kg	0.79	1
CR-NPE2	Barium	mg/kg	36.5	1
CR-NPE2	Beryllium	mg/kg	0.13	1
CR-NPE2	Cadmium	mg/kg	0.062	1
CR-NPE2	Calcium	mg/kg	1700	1
CR-NPE2	Chromium	mg/kg	6.93	1
CR-NPE2	Cobalt	mg/kg	2.3	1
CR-NPE2	Copper	mg/kg	7.1	1
CR-NPE2	Iron	mg/kg	5800	1
CR-NPE2	Lead	mg/kg	2.94	1
CR-NPE2	Magnesium	mg/kg	1610	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-NPE2	Manganese	mg/kg	97.4	1
CR-NPE2	Mercury	mg/kg	0.004	1
CR-NPE2	Nickel	mg/kg	5.76	1
CR-NPE2	Potassium	mg/kg	566	1
CR-NPE2	Selenium	mg/kg	0.04	0
CR-NPE2	Silver	mg/kg	0.047	1
CR-NPE2	Sodium	mg/kg	138	1
CR-NPE2	Thallium	mg/kg	0.046	1
CR-NPE2	Vanadium	mg/kg	8.02	1
CR-NPE2	Zinc	mg/kg	19.8	1
CR-NZA1	Aluminum	mg/kg	6580	1
CR-NZA1	Antimony	mg/kg	0.257	1
CR-NZA1	Arsenic	mg/kg	11.9	1
CR-NZA1	Barium	mg/kg	56.2	1
CR-NZA1	Beryllium	mg/kg	0.25	1
CR-NZA1	Cadmium	mg/kg	0.174	1
CR-NZA1	Calcium	mg/kg	11300	1
CR-NZA1	Chromium	mg/kg	18.1	1
CR-NZA1	Cobalt	mg/kg	7.91	1
CR-NZA1	Copper	mg/kg	17.4	1
CR-NZA1	Iron	mg/kg	17400	1
CR-NZA1	Lead	mg/kg	10	1
CR-NZA1	Magnesium	mg/kg	5190	1
CR-NZA1	Manganese	mg/kg	299	1
CR-NZA1	Mercury	mg/kg	0.009	1
CR-NZA1	Nickel	mg/kg	19.6	1
CR-NZA1	Potassium	mg/kg	778	1
CR-NZA1	Selenium	mg/kg	0.2	0
CR-NZA1	Silver	mg/kg	0.12	1
CR-NZA1	Sodium	mg/kg	104	1
CR-NZA1	Thallium	mg/kg	0.065	1
CR-NZA1	Vanadium	mg/kg	18.5	1
CR-NZA1	Zinc	mg/kg	45	1
CR-NZA2	Aluminum	mg/kg	6730	1
CR-NZA2	Antimony	mg/kg	0.299	1
CR-NZA2	Arsenic	mg/kg	15.3	1
CR-NZA2	Barium	mg/kg	79	1
CR-NZA2	Beryllium	mg/kg	0.24	1
CR-NZA2	Cadmium	mg/kg	0.193	1
CR-NZA2	Calcium	mg/kg	13400	1
CR-NZA2	Chromium	mg/kg	19.4	1
CR-NZA2	Cobalt	mg/kg	13.2	1
CR-NZA2	Copper	mg/kg	18.8	1
CR-NZA2	Iron	mg/kg	19200	1
CR-NZA2	Lead	mg/kg	11	1
CR-NZA2	Magnesium	mg/kg	5390	1
CR-NZA2	Manganese	mg/kg	510	1
CR-NZA2	Mercury	mg/kg	0.011	1
CR-NZA2	Nickel	mg/kg	23.6	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-NZA2	Potassium	mg/kg	799	1
CR-NZA2	Selenium	mg/kg	0.2	0
CR-NZA2	Silver	mg/kg	0.145	1
CR-NZA2	Sodium	mg/kg	99	1
CR-NZA2	Thallium	mg/kg	0.064	1
CR-NZA2	Vanadium	mg/kg	18.3	1
CR-NZA2	Zinc	mg/kg	46.3	1
CR-NZA3	Aluminum	mg/kg	7600	1
CR-NZA3	Antimony	mg/kg	0.214	1
CR-NZA3	Arsenic	mg/kg	11	1
CR-NZA3	Barium	mg/kg	63.3	1
CR-NZA3	Beryllium	mg/kg	0.26	1
CR-NZA3	Cadmium	mg/kg	0.163	1
CR-NZA3	Calcium	mg/kg	15000	1
CR-NZA3	Chromium	mg/kg	19.8	1
CR-NZA3	Cobalt	mg/kg	8.56	1
CR-NZA3	Copper	mg/kg	18.6	1
CR-NZA3	Iron	mg/kg	20200	1
CR-NZA3	Lead	mg/kg	9.4	1
CR-NZA3	Magnesium	mg/kg	5960	1
CR-NZA3	Manganese	mg/kg	323	1
CR-NZA3	Mercury	mg/kg	0.013	1
CR-NZA3	Nickel	mg/kg	23.1	1
CR-NZA3	Potassium	mg/kg	853	1
CR-NZA3	Selenium	mg/kg	0.2	0
CR-NZA3	Silver	mg/kg	0.101	1
CR-NZA3	Sodium	mg/kg	116	1
CR-NZA3	Thallium	mg/kg	0.056	1
CR-NZA3	Vanadium	mg/kg	18.7	1
CR-NZA3	Zinc	mg/kg	45.9	1
CR-NZB1	Aluminum	mg/kg	5850	1
CR-NZB1	Antimony	mg/kg	0.176	1
CR-NZB1	Arsenic	mg/kg	5.3	1
CR-NZB1	Barium	mg/kg	40.9	1
CR-NZB1	Beryllium	mg/kg	0.17	1
CR-NZB1	Cadmium	mg/kg	0.108	1
CR-NZB1	Calcium	mg/kg	9960	1
CR-NZB1	Chromium	mg/kg	13.3	1
CR-NZB1	Cobalt	mg/kg	5.39	1
CR-NZB1	Copper	mg/kg	12.5	1
CR-NZB1	Iron	mg/kg	14600	1
CR-NZB1	Lead	mg/kg	5.7	1
CR-NZB1	Magnesium	mg/kg	4820	1
CR-NZB1	Manganese	mg/kg	213	1
CR-NZB1	Mercury	mg/kg	0.005	1
CR-NZB1	Nickel	mg/kg	15.5	1
CR-NZB1	Potassium	mg/kg	610	1
CR-NZB1	Selenium	mg/kg	0.2	0
CR-NZB1	Silver	mg/kg	0.056	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-NZB1	Sodium	mg/kg	107	1
CR-NZB1	Thallium	mg/kg	0.036	1
CR-NZB1	Vanadium	mg/kg	16.7	1
CR-NZB1	Zinc	mg/kg	32.3	1
CR-NZB2	Aluminum	mg/kg	7760	1
CR-NZB2	Antimony	mg/kg	0.179	1
CR-NZB2	Arsenic	mg/kg	8.41	1
CR-NZB2	Barium	mg/kg	70.7	1
CR-NZB2	Beryllium	mg/kg	0.27	1
CR-NZB2	Cadmium	mg/kg	0.165	1
CR-NZB2	Calcium	mg/kg	13300	1
CR-NZB2	Chromium	mg/kg	18.6	1
CR-NZB2	Cobalt	mg/kg	8.24	1
CR-NZB2	Copper	mg/kg	17.4	1
CR-NZB2	Iron	mg/kg	18400	1
CR-NZB2	Lead	mg/kg	8.6	1
CR-NZB2	Magnesium	mg/kg	6130	1
CR-NZB2	Manganese	mg/kg	325	1
CR-NZB2	Mercury	mg/kg	0.009	1
CR-NZB2	Nickel	mg/kg	20.6	1
CR-NZB2	Potassium	mg/kg	979	1
CR-NZB2	Selenium	mg/kg	0.2	0
CR-NZB2	Silver	mg/kg	0.098	1
CR-NZB2	Sodium	mg/kg	122	1
CR-NZB2	Thallium	mg/kg	0.06	1
CR-NZB2	Vanadium	mg/kg	20.6	1
CR-NZB2	Zinc	mg/kg	43.6	1
CR-NZB3	Aluminum	mg/kg	8080	1
CR-NZB3	Antimony	mg/kg	0.203	1
CR-NZB3	Arsenic	mg/kg	8.09	1
CR-NZB3	Barium	mg/kg	71.9	1
CR-NZB3	Beryllium	mg/kg	0.25	1
CR-NZB3	Cadmium	mg/kg	0.173	1
CR-NZB3	Calcium	mg/kg	14200	1
CR-NZB3	Chromium	mg/kg	19.8	1
CR-NZB3	Cobalt	mg/kg	8.14	1
CR-NZB3	Copper	mg/kg	17.6	1
CR-NZB3	Iron	mg/kg	18900	1
CR-NZB3	Lead	mg/kg	8.5	1
CR-NZB3	Magnesium	mg/kg	6330	1
CR-NZB3	Manganese	mg/kg	355	1
CR-NZB3	Mercury	mg/kg	0.009	1
CR-NZB3	Nickel	mg/kg	21.9	1
CR-NZB3	Potassium	mg/kg	1120	1
CR-NZB3	Selenium	mg/kg	0.2	1
CR-NZB3	Silver	mg/kg	0.087	1
CR-NZB3	Sodium	mg/kg	133	1
CR-NZB3	Thallium	mg/kg	0.071	1
CR-NZB3	Vanadium	mg/kg	22.1	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-NZB3	Zinc	mg/kg	45.4	1
CR-NZC1	Aluminum	mg/kg	7950	1
CR-NZC1	Antimony	mg/kg	0.18	1
CR-NZC1	Arsenic	mg/kg	6.93	1
CR-NZC1	Barium	mg/kg	78.9	1
CR-NZC1	Beryllium	mg/kg	0.27	1
CR-NZC1	Cadmium	mg/kg	0.157	1
CR-NZC1	Calcium	mg/kg	15200	1
CR-NZC1	Chromium	mg/kg	17.3	1
CR-NZC1	Cobalt	mg/kg	6.55	1
CR-NZC1	Copper	mg/kg	16.9	1
CR-NZC1	Iron	mg/kg	17500	1
CR-NZC1	Lead	mg/kg	8.5	1
CR-NZC1	Magnesium	mg/kg	6210	1
CR-NZC1	Manganese	mg/kg	283	1
CR-NZC1	Mercury	mg/kg	0.007	1
CR-NZC1	Nickel	mg/kg	17.8	1
CR-NZC1	Potassium	mg/kg	1080	1
CR-NZC1	Selenium	mg/kg	0.2	1
CR-NZC1	Silver	mg/kg	0.103	1
CR-NZC1	Sodium	mg/kg	151	1
CR-NZC1	Thallium	mg/kg	0.073	1
CR-NZC1	Vanadium	mg/kg	20.2	1
CR-NZC1	Zinc	mg/kg	42.2	1
CR-NZC2	Aluminum	mg/kg	7270	1
CR-NZC2	Antimony	mg/kg	0.139	1
CR-NZC2	Arsenic	mg/kg	6.69	1
CR-NZC2	Barium	mg/kg	58.9	1
CR-NZC2	Beryllium	mg/kg	0.24	1
CR-NZC2	Cadmium	mg/kg	0.139	1
CR-NZC2	Calcium	mg/kg	14400	1
CR-NZC2	Chromium	mg/kg	17.4	1
CR-NZC2	Cobalt	mg/kg	7.19	1
CR-NZC2	Copper	mg/kg	16.5	1
CR-NZC2	Iron	mg/kg	17400	1
CR-NZC2	Lead	mg/kg	7.6	1
CR-NZC2	Magnesium	mg/kg	6090	1
CR-NZC2	Manganese	mg/kg	288	1
CR-NZC2	Mercury	mg/kg	0.008	1
CR-NZC2	Nickel	mg/kg	19.1	1
CR-NZC2	Potassium	mg/kg	863	1
CR-NZC2	Selenium	mg/kg	0.2	1
CR-NZC2	Silver	mg/kg	0.079	1
CR-NZC2	Sodium	mg/kg	137	1
CR-NZC2	Thallium	mg/kg	0.055	1
CR-NZC2	Vanadium	mg/kg	18.6	1
CR-NZC2	Zinc	mg/kg	39.2	1
CR-NZC3	Aluminum	mg/kg	7080	1
CR-NZC3	Antimony	mg/kg	0.141	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
CR-NZC3	Arsenic	mg/kg	6.54	1
CR-NZC3	Barium	mg/kg	50.6	1
CR-NZC3	Beryllium	mg/kg	0.23	1
CR-NZC3	Cadmium	mg/kg	0.143	1
CR-NZC3	Calcium	mg/kg	14300	1
CR-NZC3	Chromium	mg/kg	18	1
CR-NZC3	Cobalt	mg/kg	6.9	1
CR-NZC3	Copper	mg/kg	16.1	1
CR-NZC3	Iron	mg/kg	17100	1
CR-NZC3	Lead	mg/kg	6.9	1
CR-NZC3	Magnesium	mg/kg	6070	1
CR-NZC3	Manganese	mg/kg	269	1
CR-NZC3	Mercury	mg/kg	0.007	1
CR-NZC3	Nickel	mg/kg	19.5	1
CR-NZC3	Potassium	mg/kg	847	1
CR-NZC3	Selenium	mg/kg	0.2	0
CR-NZC3	Silver	mg/kg	0.068	1
CR-NZC3	Sodium	mg/kg	131	1
CR-NZC3	Thallium	mg/kg	0.049	1
CR-NZC3	Vanadium	mg/kg	19	1
CR-NZC3	Zinc	mg/kg	38.1	1
CR-NZD1	Aluminum	mg/kg	7110	1
CR-NZD1	Antimony	mg/kg	0.155	1
CR-NZD1	Arsenic	mg/kg	5.26	1
CR-NZD1	Barium	mg/kg	53	1
CR-NZD1	Beryllium	mg/kg	0.19	1
CR-NZD1	Cadmium	mg/kg	0.158	1
CR-NZD1	Calcium	mg/kg	8490	1
CR-NZD1	Chromium	mg/kg	16.6	1
CR-NZD1	Cobalt	mg/kg	6.24	1
CR-NZD1	Copper	mg/kg	15.6	1
CR-NZD1	Iron	mg/kg	16700	1
CR-NZD1	Lead	mg/kg	6.6	1
CR-NZD1	Magnesium	mg/kg	4940	1
CR-NZD1	Manganese	mg/kg	252	1
CR-NZD1	Mercury	mg/kg	0.005	1
CR-NZD1	Nickel	mg/kg	17.6	1
CR-NZD1	Potassium	mg/kg	788	1
CR-NZD1	Selenium	mg/kg	0.2	0
CR-NZD1	Silver	mg/kg	0.066	1
CR-NZD1	Sodium	mg/kg	117	1
CR-NZD1	Thallium	mg/kg	0.077	1
CR-NZD1	Vanadium	mg/kg	18.5	1
CR-NZD1	Zinc	mg/kg	40.4	1
CR-NZD2	Aluminum	mg/kg	7760	1
CR-NZD2	Antimony	mg/kg	0.144	1
CR-NZD2	Arsenic	mg/kg	4.62	1
CR-NZD2	Barium	mg/kg	61	1
CR-NZD2	Beryllium	mg/kg	0.24	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-NZD2	Cadmium	mg/kg	0.436	1
CR-NZD2	Calcium	mg/kg	2960	1
CR-NZD2	Chromium	mg/kg	15.7	1
CR-NZD2	Cobalt	mg/kg	6.44	1
CR-NZD2	Copper	mg/kg	14.6	1
CR-NZD2	Iron	mg/kg	16300	1
CR-NZD2	Lead	mg/kg	11	1
CR-NZD2	Magnesium	mg/kg	4190	1
CR-NZD2	Manganese	mg/kg	211	1
CR-NZD2	Mercury	mg/kg	0.011	1
CR-NZD2	Nickel	mg/kg	17.3	1
CR-NZD2	Potassium	mg/kg	948	1
CR-NZD2	Selenium	mg/kg	0.2	1
CR-NZD2	Silver	mg/kg	0.051	1
CR-NZD2	Sodium	mg/kg	88	1
CR-NZD2	Thallium	mg/kg	0.105	1
CR-NZD2	Vanadium	mg/kg	18.4	1
CR-NZD2	Zinc	mg/kg	55.6	1
CR-NZD3	Aluminum	mg/kg	10000	1
CR-NZD3	Antimony	mg/kg	0.126	1
CR-NZD3	Arsenic	mg/kg	4.46	1
CR-NZD3	Barium	mg/kg	83	1
CR-NZD3	Beryllium	mg/kg	0.31	1
CR-NZD3	Cadmium	mg/kg	0.254	1
CR-NZD3	Calcium	mg/kg	2800	1
CR-NZD3	Chromium	mg/kg	17.8	1
CR-NZD3	Cobalt	mg/kg	6.12	1
CR-NZD3	Copper	mg/kg	13.4	1
CR-NZD3	Iron	mg/kg	16500	1
CR-NZD3	Lead	mg/kg	9.1	1
CR-NZD3	Magnesium	mg/kg	3680	1
CR-NZD3	Manganese	mg/kg	251	1
CR-NZD3	Mercury	mg/kg	0.005	1
CR-NZD3	Nickel	mg/kg	15.6	1
CR-NZD3	Potassium	mg/kg	1300	1
CR-NZD3	Selenium	mg/kg	0.2	0
CR-NZD3	Silver	mg/kg	0.04	1
CR-NZD3	Sodium	mg/kg	91	1
CR-NZD3	Thallium	mg/kg	0.087	1
CR-NZD3	Vanadium	mg/kg	21.1	1
CR-NZD3	Zinc	mg/kg	48.1	1
CR-NZE1	Aluminum	mg/kg	7410	1
CR-NZE1	Antimony	mg/kg	0.126	1
CR-NZE1	Arsenic	mg/kg	5.51	1
CR-NZE1	Barium	mg/kg	52.7	1
CR-NZE1	Beryllium	mg/kg	0.21	1
CR-NZE1	Cadmium	mg/kg	0.131	1
CR-NZE1	Calcium	mg/kg	8470	1
CR-NZE1	Chromium	mg/kg	18.8	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-NZE1	Cobalt	mg/kg	6.92	1
CR-NZE1	Copper	mg/kg	15.5	1
CR-NZE1	Iron	mg/kg	17000	1
CR-NZE1	Lead	mg/kg	8.4	1
CR-NZE1	Magnesium	mg/kg	5580	1
CR-NZE1	Manganese	mg/kg	264	1
CR-NZE1	Mercury	mg/kg	0.009	1
CR-NZE1	Nickel	mg/kg	20.4	1
CR-NZE1	Potassium	mg/kg	666	1
CR-NZE1	Selenium	mg/kg	0.2	0
CR-NZE1	Silver	mg/kg	0.072	1
CR-NZE1	Sodium	mg/kg	99	1
CR-NZE1	Thallium	mg/kg	0.044	1
CR-NZE1	Vanadium	mg/kg	19.1	1
CR-NZE1	Zinc	mg/kg	41.2	1
CR-NZE2	Aluminum	mg/kg	7620	1
CR-NZE2	Antimony	mg/kg	0.179	1
CR-NZE2	Arsenic	mg/kg	5.38	1
CR-NZE2	Barium	mg/kg	36.4	1
CR-NZE2	Beryllium	mg/kg	0.25	1
CR-NZE2	Cadmium	mg/kg	0.135	1
CR-NZE2	Calcium	mg/kg	9290	1
CR-NZE2	Chromium	mg/kg	20.9	1
CR-NZE2	Cobalt	mg/kg	7.08	1
CR-NZE2	Copper	mg/kg	18.8	1
CR-NZE2	Iron	mg/kg	18900	1
CR-NZE2	Lead	mg/kg	8.9	1
CR-NZE2	Magnesium	mg/kg	5330	1
CR-NZE2	Manganese	mg/kg	308	1
CR-NZE2	Mercury	mg/kg	0.011	1
CR-NZE2	Nickel	mg/kg	21.8	1
CR-NZE2	Potassium	mg/kg	687	1
CR-NZE2	Selenium	mg/kg	0.2	0
CR-NZE2	Silver	mg/kg	0.075	1
CR-NZE2	Sodium	mg/kg	82	1
CR-NZE2	Thallium	mg/kg	0.048	1
CR-NZE2	Vanadium	mg/kg	20.3	1
CR-NZE2	Zinc	mg/kg	45.3	1
CR-NZE3	Aluminum	mg/kg	6940	1
CR-NZE3	Antimony	mg/kg	0.16	1
CR-NZE3	Arsenic	mg/kg	6.35	1
CR-NZE3	Barium	mg/kg	33.3	1
CR-NZE3	Beryllium	mg/kg	0.24	1
CR-NZE3	Cadmium	mg/kg	0.134	1
CR-NZE3	Calcium	mg/kg	9390	1
CR-NZE3	Chromium	mg/kg	19.3	1
CR-NZE3	Cobalt	mg/kg	6.53	1
CR-NZE3	Copper	mg/kg	17.6	1
CR-NZE3	Iron	mg/kg	17400	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
CR-NZE3	Lead	mg/kg	9	1
CR-NZE3	Magnesium	mg/kg	4800	1
CR-NZE3	Manganese	mg/kg	268	1
CR-NZE3	Mercury	mg/kg	0.012	1
CR-NZE3	Nickel	mg/kg	21.5	1
CR-NZE3	Potassium	mg/kg	626	1
CR-NZE3	Selenium	mg/kg	0.2	0
CR-NZE3	Silver	mg/kg	0.072	1
CR-NZE3	Sodium	mg/kg	88	1
CR-NZE3	Thallium	mg/kg	0.044	1
CR-NZE3	Vanadium	mg/kg	18.7	1
CR-NZE3	Zinc	mg/kg	42.6	1
CR-SBA1	Aluminum	mg/kg	5460	1
CR-SBA1	Antimony	mg/kg	0.5	1
CR-SBA1	Arsenic	mg/kg	6.04	1
CR-SBA1	Barium	mg/kg	55.5	1
CR-SBA1	Beryllium	mg/kg	0.47	1
CR-SBA1	Cadmium	mg/kg	0.096	1
CR-SBA1	Calcium	mg/kg	10400	1
CR-SBA1	Chromium	mg/kg	7.48	1
CR-SBA1	Cobalt	mg/kg	4.44	1
CR-SBA1	Copper	mg/kg	10.3	1
CR-SBA1	Iron	mg/kg	12900	1
CR-SBA1	Lead	mg/kg	6.23	1
CR-SBA1	Magnesium	mg/kg	4370	1
CR-SBA1	Manganese	mg/kg	252	1
CR-SBA1	Mercury	mg/kg	0.004	1
CR-SBA1	Nickel	mg/kg	7.22	1
CR-SBA1	Potassium	mg/kg	1070	1
CR-SBA1	Selenium	mg/kg	0.2	0
CR-SBA1	Silver	mg/kg	0.365	1
CR-SBA1	Sodium	mg/kg	35	1
CR-SBA1	Thallium	mg/kg	0.099	1
CR-SBA1	Vanadium	mg/kg	10.4	1
CR-SBA1	Zinc	mg/kg	40.5	1
CR-SBA2	Aluminum	mg/kg	6080	1
CR-SBA2	Antimony	mg/kg	0.244	1
CR-SBA2	Arsenic	mg/kg	5.9	1
CR-SBA2	Barium	mg/kg	53.6	1
CR-SBA2	Beryllium	mg/kg	0.23	1
CR-SBA2	Cadmium	mg/kg	0.073	1
CR-SBA2	Calcium	mg/kg	11700	1
CR-SBA2	Chromium	mg/kg	6.73	1
CR-SBA2	Cobalt	mg/kg	3.91	1
CR-SBA2	Copper	mg/kg	10.9	1
CR-SBA2	Iron	mg/kg	13900	1
CR-SBA2	Lead	mg/kg	5.35	1
CR-SBA2	Magnesium	mg/kg	4990	1
CR-SBA2	Manganese	mg/kg	231	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SBA2	Mercury	mg/kg	0.002	0
CR-SBA2	Nickel	mg/kg	7.3	1
CR-SBA2	Potassium	mg/kg	1120	1
CR-SBA2	Selenium	mg/kg	0.2	0
CR-SBA2	Silver	mg/kg	0.052	1
CR-SBA2	Sodium	mg/kg	32	1
CR-SBA2	Thallium	mg/kg	0.093	1
CR-SBA2	Vanadium	mg/kg	10.1	1
CR-SBA2	Zinc	mg/kg	40.9	1
CR-SBA3	Aluminum	mg/kg	6180	1
CR-SBA3	Antimony	mg/kg	0.18	1
CR-SBA3	Arsenic	mg/kg	6.43	1
CR-SBA3	Barium	mg/kg	65.6	1
CR-SBA3	Beryllium	mg/kg	0.24	1
CR-SBA3	Cadmium	mg/kg	0.093	1
CR-SBA3	Calcium	mg/kg	11800	1
CR-SBA3	Chromium	mg/kg	7.12	1
CR-SBA3	Cobalt	mg/kg	4.02	1
CR-SBA3	Copper	mg/kg	8	1
CR-SBA3	Iron	mg/kg	13700	1
CR-SBA3	Lead	mg/kg	6.07	1
CR-SBA3	Magnesium	mg/kg	4890	1
CR-SBA3	Manganese	mg/kg	252	1
CR-SBA3	Mercury	mg/kg	0.002	1
CR-SBA3	Nickel	mg/kg	6.89	1
CR-SBA3	Potassium	mg/kg	1130	1
CR-SBA3	Selenium	mg/kg	0.2	0
CR-SBA3	Silver	mg/kg	0.047	1
CR-SBA3	Sodium	mg/kg	36	1
CR-SBA3	Thallium	mg/kg	0.11	1
CR-SBA3	Vanadium	mg/kg	11.6	1
CR-SBA3	Zinc	mg/kg	39.2	1
CR-SBB1	Aluminum	mg/kg	5890	1
CR-SBB1	Antimony	mg/kg	0.199	1
CR-SBB1	Arsenic	mg/kg	6.37	1
CR-SBB1	Barium	mg/kg	53.6	1
CR-SBB1	Beryllium	mg/kg	0.25	1
CR-SBB1	Cadmium	mg/kg	0.085	1
CR-SBB1	Calcium	mg/kg	12300	1
CR-SBB1	Chromium	mg/kg	6.62	1
CR-SBB1	Cobalt	mg/kg	3.82	1
CR-SBB1	Copper	mg/kg	8.9	1
CR-SBB1	Iron	mg/kg	13700	1
CR-SBB1	Lead	mg/kg	5.8	1
CR-SBB1	Magnesium	mg/kg	4920	1
CR-SBB1	Manganese	mg/kg	275	1
CR-SBB1	Mercury	mg/kg	0.003	1
CR-SBB1	Nickel	mg/kg	6.93	1
CR-SBB1	Potassium	mg/kg	1040	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SBB1	Selenium	mg/kg	0.2	0
CR-SBB1	Silver	mg/kg	0.043	1
CR-SBB1	Sodium	mg/kg	32	1
CR-SBB1	Thallium	mg/kg	0.09	1
CR-SBB1	Vanadium	mg/kg	10.5	1
CR-SBB1	Zinc	mg/kg	38.7	1
CR-SBB2	Aluminum	mg/kg	6290	1
CR-SBB2	Antimony	mg/kg	0.153	1
CR-SBB2	Arsenic	mg/kg	6.02	1
CR-SBB2	Barium	mg/kg	54.7	1
CR-SBB2	Beryllium	mg/kg	0.23	1
CR-SBB2	Cadmium	mg/kg	0.073	1
CR-SBB2	Calcium	mg/kg	10700	1
CR-SBB2	Chromium	mg/kg	7.76	1
CR-SBB2	Cobalt	mg/kg	4.25	1
CR-SBB2	Copper	mg/kg	8.3	1
CR-SBB2	Iron	mg/kg	14100	1
CR-SBB2	Lead	mg/kg	5.86	1
CR-SBB2	Magnesium	mg/kg	5170	1
CR-SBB2	Manganese	mg/kg	254	1
CR-SBB2	Mercury	mg/kg	0.002	1
CR-SBB2	Nickel	mg/kg	6.86	1
CR-SBB2	Potassium	mg/kg	1580	1
CR-SBB2	Selenium	mg/kg	0.2	0
CR-SBB2	Silver	mg/kg	0.049	1
CR-SBB2	Sodium	mg/kg	58	1
CR-SBB2	Thallium	mg/kg	0.098	1
CR-SBB2	Vanadium	mg/kg	11.7	1
CR-SBB2	Zinc	mg/kg	38.9	1
CR-SBB3	Aluminum	mg/kg	6250	1
CR-SBB3	Antimony	mg/kg	0.224	1
CR-SBB3	Arsenic	mg/kg	5.47	1
CR-SBB3	Barium	mg/kg	70.9	1
CR-SBB3	Beryllium	mg/kg	0.27	1
CR-SBB3	Cadmium	mg/kg	0.087	1
CR-SBB3	Calcium	mg/kg	14200	1
CR-SBB3	Chromium	mg/kg	6.56	1
CR-SBB3	Cobalt	mg/kg	4.08	1
CR-SBB3	Copper	mg/kg	8.8	1
CR-SBB3	Iron	mg/kg	14400	1
CR-SBB3	Lead	mg/kg	6.01	1
CR-SBB3	Magnesium	mg/kg	6030	1
CR-SBB3	Manganese	mg/kg	268	1
CR-SBB3	Mercury	mg/kg	0.002	1
CR-SBB3	Nickel	mg/kg	7.28	1
CR-SBB3	Potassium	mg/kg	1260	1
CR-SBB3	Selenium	mg/kg	0.2	0
CR-SBB3	Silver	mg/kg	0.05	1
CR-SBB3	Sodium	mg/kg	47	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SBB3	Thallium	mg/kg	0.091	1
CR-SBB3	Vanadium	mg/kg	10.9	1
CR-SBB3	Zinc	mg/kg	39.5	1
CR-SBC1	Aluminum	mg/kg	5960	1
CR-SBC1	Antimony	mg/kg	0.228	1
CR-SBC1	Arsenic	mg/kg	5.65	1
CR-SBC1	Barium	mg/kg	56.9	1
CR-SBC1	Beryllium	mg/kg	0.24	1
CR-SBC1	Cadmium	mg/kg	0.086	1
CR-SBC1	Calcium	mg/kg	12000	1
CR-SBC1	Chromium	mg/kg	7.2	1
CR-SBC1	Cobalt	mg/kg	4.07	1
CR-SBC1	Copper	mg/kg	8.8	1
CR-SBC1	Iron	mg/kg	14400	1
CR-SBC1	Lead	mg/kg	5.91	1
CR-SBC1	Magnesium	mg/kg	4920	1
CR-SBC1	Manganese	mg/kg	248	1
CR-SBC1	Mercury	mg/kg	0.002	0
CR-SBC1	Nickel	mg/kg	7.22	1
CR-SBC1	Potassium	mg/kg	1080	1
CR-SBC1	Selenium	mg/kg	0.2	0
CR-SBC1	Silver	mg/kg	0.045	1
CR-SBC1	Sodium	mg/kg	41	1
CR-SBC1	Thallium	mg/kg	0.082	1
CR-SBC1	Vanadium	mg/kg	10.8	1
CR-SBC1	Zinc	mg/kg	40.2	1
CR-SBC2	Aluminum	mg/kg	5510	1
CR-SBC2	Antimony	mg/kg	0.234	1
CR-SBC2	Arsenic	mg/kg	6.7	1
CR-SBC2	Barium	mg/kg	52.8	1
CR-SBC2	Beryllium	mg/kg	0.23	1
CR-SBC2	Cadmium	mg/kg	0.079	1
CR-SBC2	Calcium	mg/kg	11100	1
CR-SBC2	Chromium	mg/kg	6.68	1
CR-SBC2	Cobalt	mg/kg	3.66	1
CR-SBC2	Copper	mg/kg	7.6	1
CR-SBC2	Iron	mg/kg	12900	1
CR-SBC2	Lead	mg/kg	6.06	1
CR-SBC2	Magnesium	mg/kg	4630	1
CR-SBC2	Manganese	mg/kg	234	1
CR-SBC2	Mercury	mg/kg	0.002	0
CR-SBC2	Nickel	mg/kg	6.33	1
CR-SBC2	Potassium	mg/kg	1060	1
CR-SBC2	Selenium	mg/kg	0.2	0
CR-SBC2	Silver	mg/kg	0.065	1
CR-SBC2	Sodium	mg/kg	33	1
CR-SBC2	Thallium	mg/kg	0.105	1
CR-SBC2	Vanadium	mg/kg	10.4	1
CR-SBC2	Zinc	mg/kg	35.8	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SBC3	Aluminum	mg/kg	5580	1
CR-SBC3	Antimony	mg/kg	0.178	1
CR-SBC3	Arsenic	mg/kg	6.78	1
CR-SBC3	Barium	mg/kg	58.9	1
CR-SBC3	Beryllium	mg/kg	0.23	1
CR-SBC3	Cadmium	mg/kg	0.113	1
CR-SBC3	Calcium	mg/kg	10500	1
CR-SBC3	Chromium	mg/kg	7.05	1
CR-SBC3	Cobalt	mg/kg	3.29	1
CR-SBC3	Copper	mg/kg	8	1
CR-SBC3	Iron	mg/kg	12800	1
CR-SBC3	Lead	mg/kg	5.23	1
CR-SBC3	Magnesium	mg/kg	4570	1
CR-SBC3	Manganese	mg/kg	226	1
CR-SBC3	Mercury	mg/kg	0.002	0
CR-SBC3	Nickel	mg/kg	6.61	1
CR-SBC3	Potassium	mg/kg	1010	1
CR-SBC3	Selenium	mg/kg	0.2	0
CR-SBC3	Silver	mg/kg	0.051	1
CR-SBC3	Sodium	mg/kg	33	1
CR-SBC3	Thallium	mg/kg	0.137	1
CR-SBC3	Vanadium	mg/kg	10.7	1
CR-SBC3	Zinc	mg/kg	37.2	1
CR-SBD1	Aluminum	mg/kg	5690	1
CR-SBD1	Antimony	mg/kg	0.224	1
CR-SBD1	Arsenic	mg/kg	5.57	1
CR-SBD1	Barium	mg/kg	45	1
CR-SBD1	Beryllium	mg/kg	0.24	1
CR-SBD1	Cadmium	mg/kg	0.089	1
CR-SBD1	Calcium	mg/kg	11700	1
CR-SBD1	Chromium	mg/kg	6.77	1
CR-SBD1	Cobalt	mg/kg	3.37	1
CR-SBD1	Copper	mg/kg	7.8	1
CR-SBD1	Iron	mg/kg	13900	1
CR-SBD1	Lead	mg/kg	5.4	1
CR-SBD1	Magnesium	mg/kg	4620	1
CR-SBD1	Manganese	mg/kg	232	1
CR-SBD1	Mercury	mg/kg	0.002	0
CR-SBD1	Nickel	mg/kg	6.46	1
CR-SBD1	Potassium	mg/kg	952	1
CR-SBD1	Selenium	mg/kg	0.2	0
CR-SBD1	Silver	mg/kg	0.04	1
CR-SBD1	Sodium	mg/kg	36	1
CR-SBD1	Thallium	mg/kg	0.087	1
CR-SBD1	Vanadium	mg/kg	9.97	1
CR-SBD1	Zinc	mg/kg	36.5	1
CR-SBD2	Aluminum	mg/kg	5500	1
CR-SBD2	Antimony	mg/kg	0.161	1
CR-SBD2	Arsenic	mg/kg	6.42	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SBD2	Barium	mg/kg	52.6	1
CR-SBD2	Beryllium	mg/kg	0.24	1
CR-SBD2	Cadmium	mg/kg	0.099	1
CR-SBD2	Calcium	mg/kg	12700	1
CR-SBD2	Chromium	mg/kg	6.63	1
CR-SBD2	Cobalt	mg/kg	3.51	1
CR-SBD2	Copper	mg/kg	6.9	1
CR-SBD2	Iron	mg/kg	12600	1
CR-SBD2	Lead	mg/kg	5.85	1
CR-SBD2	Magnesium	mg/kg	5300	1
CR-SBD2	Manganese	mg/kg	286	1
CR-SBD2	Mercury	mg/kg	0.002	1
CR-SBD2	Nickel	mg/kg	6.35	1
CR-SBD2	Potassium	mg/kg	1060	1
CR-SBD2	Selenium	mg/kg	0.2	0
CR-SBD2	Silver	mg/kg	0.04	1
CR-SBD2	Sodium	mg/kg	29	1
CR-SBD2	Thallium	mg/kg	0.091	1
CR-SBD2	Vanadium	mg/kg	10.7	1
CR-SBD2	Zinc	mg/kg	36.2	1
CR-SBD3	Aluminum	mg/kg	5510	1
CR-SBD3	Antimony	mg/kg	0.183	1
CR-SBD3	Arsenic	mg/kg	6.19	1
CR-SBD3	Barium	mg/kg	46	1
CR-SBD3	Beryllium	mg/kg	0.24	1
CR-SBD3	Cadmium	mg/kg	0.1	1
CR-SBD3	Calcium	mg/kg	9520	1
CR-SBD3	Chromium	mg/kg	7.44	1
CR-SBD3	Cobalt	mg/kg	4.1	1
CR-SBD3	Copper	mg/kg	7.5	1
CR-SBD3	Iron	mg/kg	13500	1
CR-SBD3	Lead	mg/kg	5.82	1
CR-SBD3	Magnesium	mg/kg	4640	1
CR-SBD3	Manganese	mg/kg	226	1
CR-SBD3	Mercury	mg/kg	0.002	1
CR-SBD3	Nickel	mg/kg	6.44	1
CR-SBD3	Potassium	mg/kg	1050	1
CR-SBD3	Selenium	mg/kg	0.2	0
CR-SBD3	Silver	mg/kg	0.109	1
CR-SBD3	Sodium	mg/kg	29	1
CR-SBD3	Thallium	mg/kg	0.1	1
CR-SBD3	Vanadium	mg/kg	10.8	1
CR-SBD3	Zinc	mg/kg	37.5	1
CR-SBE1	Aluminum	mg/kg	5300	1
CR-SBE1	Antimony	mg/kg	0.282	1
CR-SBE1	Arsenic	mg/kg	5.94	1
CR-SBE1	Barium	mg/kg	48.8	1
CR-SBE1	Beryllium	mg/kg	0.22	1
CR-SBE1	Cadmium	mg/kg	0.087	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SBE1	Calcium	mg/kg	11600	1
CR-SBE1	Chromium	mg/kg	7.64	1
CR-SBE1	Cobalt	mg/kg	3.69	1
CR-SBE1	Copper	mg/kg	8.1	1
CR-SBE1	Iron	mg/kg	14300	1
CR-SBE1	Lead	mg/kg	6.22	1
CR-SBE1	Magnesium	mg/kg	4590	1
CR-SBE1	Manganese	mg/kg	238	1
CR-SBE1	Mercury	mg/kg	0.003	1
CR-SBE1	Nickel	mg/kg	6.72	1
CR-SBE1	Potassium	mg/kg	1020	1
CR-SBE1	Selenium	mg/kg	0.2	0
CR-SBE1	Silver	mg/kg	0.041	1
CR-SBE1	Sodium	mg/kg	28	1
CR-SBE1	Thallium	mg/kg	0.084	1
CR-SBE1	Vanadium	mg/kg	11.8	1
CR-SBE1	Zinc	mg/kg	36.1	1
CR-SBE2	Aluminum	mg/kg	5750	1
CR-SBE2	Antimony	mg/kg	0.163	1
CR-SBE2	Arsenic	mg/kg	5.63	1
CR-SBE2	Barium	mg/kg	46.4	1
CR-SBE2	Beryllium	mg/kg	0.22	1
CR-SBE2	Cadmium	mg/kg	0.084	1
CR-SBE2	Calcium	mg/kg	12000	1
CR-SBE2	Chromium	mg/kg	6.7	1
CR-SBE2	Cobalt	mg/kg	3.3	1
CR-SBE2	Copper	mg/kg	9.1	1
CR-SBE2	Iron	mg/kg	12800	1
CR-SBE2	Lead	mg/kg	6.01	1
CR-SBE2	Magnesium	mg/kg	4760	1
CR-SBE2	Manganese	mg/kg	224	1
CR-SBE2	Mercury	mg/kg	0.002	0
CR-SBE2	Nickel	mg/kg	6.5	1
CR-SBE2	Potassium	mg/kg	1060	1
CR-SBE2	Selenium	mg/kg	0.2	0
CR-SBE2	Silver	mg/kg	0.051	1
CR-SBE2	Sodium	mg/kg	56	1
CR-SBE2	Thallium	mg/kg	0.074	1
CR-SBE2	Vanadium	mg/kg	9.98	1
CR-SBE2	Zinc	mg/kg	34	1
CR-SBE3	Aluminum	mg/kg	5560	1
CR-SBE3	Antimony	mg/kg	0.178	1
CR-SBE3	Arsenic	mg/kg	6.34	1
CR-SBE3	Barium	mg/kg	56.5	1
CR-SBE3	Beryllium	mg/kg	0.24	1
CR-SBE3	Cadmium	mg/kg	0.082	1
CR-SBE3	Calcium	mg/kg	10700	1
CR-SBE3	Chromium	mg/kg	6.79	1
CR-SBE3	Cobalt	mg/kg	3.56	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SBE3	Copper	mg/kg	7.8	1
CR-SBE3	Iron	mg/kg	12500	1
CR-SBE3	Lead	mg/kg	5.95	1
CR-SBE3	Magnesium	mg/kg	4350	1
CR-SBE3	Manganese	mg/kg	217	1
CR-SBE3	Mercury	mg/kg	0.002	0
CR-SBE3	Nickel	mg/kg	7.46	1
CR-SBE3	Potassium	mg/kg	1110	1
CR-SBE3	Selenium	mg/kg	0.2	0
CR-SBE3	Silver	mg/kg	0.037	1
CR-SBE3	Sodium	mg/kg	38	1
CR-SBE3	Thallium	mg/kg	0.094	1
CR-SBE3	Vanadium	mg/kg	11.7	1
CR-SBE3	Zinc	mg/kg	35.2	1
CR-SCA1	Aluminum	mg/kg	7680	1
CR-SCA1	Antimony	mg/kg	0.226	1
CR-SCA1	Arsenic	mg/kg	9.71	1
CR-SCA1	Barium	mg/kg	54.3	1
CR-SCA1	Beryllium	mg/kg	0.28	1
CR-SCA1	Cadmium	mg/kg	0.131	1
CR-SCA1	Calcium	mg/kg	4350	1
CR-SCA1	Chromium	mg/kg	8.05	1
CR-SCA1	Cobalt	mg/kg	3.89	1
CR-SCA1	Copper	mg/kg	8.8	1
CR-SCA1	Iron	mg/kg	15700	1
CR-SCA1	Lead	mg/kg	6.64	1
CR-SCA1	Magnesium	mg/kg	5960	1
CR-SCA1	Manganese	mg/kg	288	1
CR-SCA1	Mercury	mg/kg	0.002	1
CR-SCA1	Nickel	mg/kg	7.49	1
CR-SCA1	Potassium	mg/kg	1510	1
CR-SCA1	Selenium	mg/kg	0.2	0
CR-SCA1	Silver	mg/kg	0.041	1
CR-SCA1	Sodium	mg/kg	55	1
CR-SCA1	Thallium	mg/kg	0.124	1
CR-SCA1	Vanadium	mg/kg	12.1	1
CR-SCA1	Zinc	mg/kg	43.5	1
CR-SCA2	Aluminum	mg/kg	8580	1
CR-SCA2	Antimony	mg/kg	0.242	1
CR-SCA2	Arsenic	mg/kg	9.92	1
CR-SCA2	Barium	mg/kg	50.6	1
CR-SCA2	Beryllium	mg/kg	0.31	1
CR-SCA2	Cadmium	mg/kg	0.087	0
CR-SCA2	Calcium	mg/kg	3620	1
CR-SCA2	Chromium	mg/kg	8.87	1
CR-SCA2	Cobalt	mg/kg	4.15	1
CR-SCA2	Copper	mg/kg	10.4	1
CR-SCA2	Iron	mg/kg	15900	1
CR-SCA2	Lead	mg/kg	6.74	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SCA2	Magnesium	mg/kg	6430	1
CR-SCA2	Manganese	mg/kg	321	1
CR-SCA2	Mercury	mg/kg	0.002	0
CR-SCA2	Nickel	mg/kg	7.98	1
CR-SCA2	Potassium	mg/kg	1730	1
CR-SCA2	Selenium	mg/kg	0.2	0
CR-SCA2	Silver	mg/kg	0.056	1
CR-SCA2	Sodium	mg/kg	60	1
CR-SCA2	Thallium	mg/kg	0.101	1
CR-SCA2	Vanadium	mg/kg	12.1	1
CR-SCA2	Zinc	mg/kg	39.6	1
CR-SCA3	Aluminum	mg/kg	8830	1
CR-SCA3	Antimony	mg/kg	0.199	1
CR-SCA3	Arsenic	mg/kg	10.2	1
CR-SCA3	Barium	mg/kg	66.7	1
CR-SCA3	Beryllium	mg/kg	0.33	1
CR-SCA3	Cadmium	mg/kg	0.08	0
CR-SCA3	Calcium	mg/kg	11300	1
CR-SCA3	Chromium	mg/kg	8.32	1
CR-SCA3	Cobalt	mg/kg	4.39	1
CR-SCA3	Copper	mg/kg	10.8	1
CR-SCA3	Iron	mg/kg	16400	1
CR-SCA3	Lead	mg/kg	6.38	1
CR-SCA3	Magnesium	mg/kg	6770	1
CR-SCA3	Manganese	mg/kg	298	1
CR-SCA3	Mercury	mg/kg	0.002	0
CR-SCA3	Nickel	mg/kg	8.7	1
CR-SCA3	Potassium	mg/kg	1820	1
CR-SCA3	Selenium	mg/kg	0.2	0
CR-SCA3	Silver	mg/kg	0.044	1
CR-SCA3	Sodium	mg/kg	75	1
CR-SCA3	Thallium	mg/kg	0.103	1
CR-SCA3	Vanadium	mg/kg	11.7	1
CR-SCA3	Zinc	mg/kg	41.7	1
CR-SCB1	Aluminum	mg/kg	8210	1
CR-SCB1	Antimony	mg/kg	0.187	1
CR-SCB1	Arsenic	mg/kg	10.5	1
CR-SCB1	Barium	mg/kg	50.1	1
CR-SCB1	Beryllium	mg/kg	0.3	1
CR-SCB1	Cadmium	mg/kg	0.148	1
CR-SCB1	Calcium	mg/kg	7790	1
CR-SCB1	Chromium	mg/kg	8.23	1
CR-SCB1	Cobalt	mg/kg	3.96	1
CR-SCB1	Copper	mg/kg	8.9	1
CR-SCB1	Iron	mg/kg	15400	1
CR-SCB1	Lead	mg/kg	6.83	1
CR-SCB1	Magnesium	mg/kg	6480	1
CR-SCB1	Manganese	mg/kg	280	1
CR-SCB1	Mercury	mg/kg	0.002	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SCB1	Nickel	mg/kg	7.69	1
CR-SCB1	Potassium	mg/kg	1510	1
CR-SCB1	Selenium	mg/kg	0.2	0
CR-SCB1	Silver	mg/kg	0.038	1
CR-SCB1	Sodium	mg/kg	59	1
CR-SCB1	Thallium	mg/kg	0.115	1
CR-SCB1	Vanadium	mg/kg	11.5	1
CR-SCB1	Zinc	mg/kg	45.3	1
CR-SCB2	Aluminum	mg/kg	8470	1
CR-SCB2	Antimony	mg/kg	0.241	1
CR-SCB2	Arsenic	mg/kg	10.3	1
CR-SCB2	Barium	mg/kg	51.3	1
CR-SCB2	Beryllium	mg/kg	0.31	1
CR-SCB2	Cadmium	mg/kg	0.096	1
CR-SCB2	Calcium	mg/kg	14900	1
CR-SCB2	Chromium	mg/kg	8.8	1
CR-SCB2	Cobalt	mg/kg	4.28	1
CR-SCB2	Copper	mg/kg	10.2	1
CR-SCB2	Iron	mg/kg	16100	1
CR-SCB2	Lead	mg/kg	6.41	1
CR-SCB2	Magnesium	mg/kg	6670	1
CR-SCB2	Manganese	mg/kg	305	1
CR-SCB2	Mercury	mg/kg	0.002	1
CR-SCB2	Nickel	mg/kg	8.15	1
CR-SCB2	Potassium	mg/kg	1520	1
CR-SCB2	Selenium	mg/kg	0.2	0
CR-SCB2	Silver	mg/kg	0.049	1
CR-SCB2	Sodium	mg/kg	68	1
CR-SCB2	Thallium	mg/kg	0.091	0
CR-SCB2	Vanadium	mg/kg	12.3	1
CR-SCB2	Zinc	mg/kg	39.9	1
CR-SCB3	Aluminum	mg/kg	8550	1
CR-SCB3	Antimony	mg/kg	0.203	1
CR-SCB3	Arsenic	mg/kg	11	1
CR-SCB3	Barium	mg/kg	51.5	1
CR-SCB3	Beryllium	mg/kg	0.31	1
CR-SCB3	Cadmium	mg/kg	0.096	1
CR-SCB3	Calcium	mg/kg	17700	1
CR-SCB3	Chromium	mg/kg	8.44	1
CR-SCB3	Cobalt	mg/kg	4.08	1
CR-SCB3	Copper	mg/kg	9.9	1
CR-SCB3	Iron	mg/kg	16100	1
CR-SCB3	Lead	mg/kg	6.79	1
CR-SCB3	Magnesium	mg/kg	7090	1
CR-SCB3	Manganese	mg/kg	307	1
CR-SCB3	Mercury	mg/kg	0.002	0
CR-SCB3	Nickel	mg/kg	7.93	1
CR-SCB3	Potassium	mg/kg	1530	1
CR-SCB3	Selenium	mg/kg	0.2	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SCB3	Silver	mg/kg	0.051	1
CR-SCB3	Sodium	mg/kg	70	1
CR-SCB3	Thallium	mg/kg	0.089	0
CR-SCB3	Vanadium	mg/kg	11.9	1
CR-SCB3	Zinc	mg/kg	39.4	1
CR-SCC1	Aluminum	mg/kg	8060	1
CR-SCC1	Antimony	mg/kg	0.195	1
CR-SCC1	Arsenic	mg/kg	8.18	1
CR-SCC1	Barium	mg/kg	50.4	1
CR-SCC1	Beryllium	mg/kg	0.3	1
CR-SCC1	Cadmium	mg/kg	0.155	1
CR-SCC1	Calcium	mg/kg	3460	1
CR-SCC1	Chromium	mg/kg	8.09	1
CR-SCC1	Cobalt	mg/kg	3.98	1
CR-SCC1	Copper	mg/kg	8.2	1
CR-SCC1	Iron	mg/kg	16200	1
CR-SCC1	Lead	mg/kg	6.94	1
CR-SCC1	Magnesium	mg/kg	6180	1
CR-SCC1	Manganese	mg/kg	238	1
CR-SCC1	Mercury	mg/kg	0.002	0
CR-SCC1	Nickel	mg/kg	8.09	1
CR-SCC1	Potassium	mg/kg	1420	1
CR-SCC1	Selenium	mg/kg	0.2	0
CR-SCC1	Silver	mg/kg	0.026	1
CR-SCC1	Sodium	mg/kg	63	1
CR-SCC1	Thallium	mg/kg	0.154	1
CR-SCC1	Vanadium	mg/kg	12.1	1
CR-SCC1	Zinc	mg/kg	52.8	1
CR-SCC2	Aluminum	mg/kg	9110	1
CR-SCC2	Antimony	mg/kg	0.171	1
CR-SCC2	Arsenic	mg/kg	10	1
CR-SCC2	Barium	mg/kg	61.8	1
CR-SCC2	Beryllium	mg/kg	0.32	1
CR-SCC2	Cadmium	mg/kg	0.101	1
CR-SCC2	Calcium	mg/kg	2440	1
CR-SCC2	Chromium	mg/kg	8.54	1
CR-SCC2	Cobalt	mg/kg	4.47	1
CR-SCC2	Copper	mg/kg	10.2	1
CR-SCC2	Iron	mg/kg	16900	1
CR-SCC2	Lead	mg/kg	6.57	1
CR-SCC2	Magnesium	mg/kg	6530	1
CR-SCC2	Manganese	mg/kg	284	1
CR-SCC2	Mercury	mg/kg	0.003	1
CR-SCC2	Nickel	mg/kg	8.25	1
CR-SCC2	Potassium	mg/kg	1990	1
CR-SCC2	Selenium	mg/kg	0.2	0
CR-SCC2	Silver	mg/kg	0.048	1
CR-SCC2	Sodium	mg/kg	70	1
CR-SCC2	Thallium	mg/kg	0.112	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SCC2	Vanadium	mg/kg	13	1
CR-SCC2	Zinc	mg/kg	44.2	1
CR-SCC3	Aluminum	mg/kg	9460	1
CR-SCC3	Antimony	mg/kg	0.192	1
CR-SCC3	Arsenic	mg/kg	11.1	1
CR-SCC3	Barium	mg/kg	67.5	1
CR-SCC3	Beryllium	mg/kg	0.34	1
CR-SCC3	Cadmium	mg/kg	0.074	0
CR-SCC3	Calcium	mg/kg	3320	1
CR-SCC3	Chromium	mg/kg	8.95	1
CR-SCC3	Cobalt	mg/kg	4.47	1
CR-SCC3	Copper	mg/kg	10.7	1
CR-SCC3	Iron	mg/kg	17200	1
CR-SCC3	Lead	mg/kg	7	1
CR-SCC3	Magnesium	mg/kg	6830	1
CR-SCC3	Manganese	mg/kg	313	1
CR-SCC3	Mercury	mg/kg	0.003	1
CR-SCC3	Nickel	mg/kg	8.65	1
CR-SCC3	Potassium	mg/kg	2210	1
CR-SCC3	Selenium	mg/kg	0.2	0
CR-SCC3	Silver	mg/kg	0.057	1
CR-SCC3	Sodium	mg/kg	68	1
CR-SCC3	Thallium	mg/kg	0.111	1
CR-SCC3	Vanadium	mg/kg	13.6	1
CR-SCC3	Zinc	mg/kg	43.1	1
CR-SCD1-1	Aluminum	mg/kg	8145	1
CR-SCD1-1	Antimony	mg/kg	0.153	1
CR-SCD1-1	Arsenic	mg/kg	8.15	1
CR-SCD1-1	Barium	mg/kg	54.4	1
CR-SCD1-1	Beryllium	mg/kg	0.285	1
CR-SCD1-1	Cadmium	mg/kg	0.1865	1
CR-SCD1-1	Calcium	mg/kg	1935	1
CR-SCD1-1	Chromium	mg/kg	8.69	1
CR-SCD1-1	Cobalt	mg/kg	3.765	1
CR-SCD1-1	Copper	mg/kg	7.25	1
CR-SCD1-1	Iron	mg/kg	15900	1
CR-SCD1-1	Lead	mg/kg	7.57	1
CR-SCD1-1	Magnesium	mg/kg	6120	1
CR-SCD1-1	Manganese	mg/kg	218.5	1
CR-SCD1-1	Mercury	mg/kg	0.003	1
CR-SCD1-1	Nickel	mg/kg	7.785	1
CR-SCD1-1	Potassium	mg/kg	1465	1
CR-SCD1-1	Selenium	mg/kg	0.2	0
CR-SCD1-1	Silver	mg/kg	0.0245	1
CR-SCD1-1	Sodium	mg/kg	54.5	1
CR-SCD1-1	Thallium	mg/kg	0.1885	1
CR-SCD1-1	Vanadium	mg/kg	11.8	1
CR-SCD1-1	Zinc	mg/kg	64.3	1
CR-SCD2	Aluminum	mg/kg	9910	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SCD2	Antimony	mg/kg	0.193	1
CR-SCD2	Arsenic	mg/kg	8.27	1
CR-SCD2	Barium	mg/kg	75.6	1
CR-SCD2	Beryllium	mg/kg	0.33	1
CR-SCD2	Cadmium	mg/kg	0.115	1
CR-SCD2	Calcium	mg/kg	1940	1
CR-SCD2	Chromium	mg/kg	8.73	1
CR-SCD2	Cobalt	mg/kg	4.48	1
CR-SCD2	Copper	mg/kg	10.6	1
CR-SCD2	Iron	mg/kg	17900	1
CR-SCD2	Lead	mg/kg	6.9	1
CR-SCD2	Magnesium	mg/kg	7020	1
CR-SCD2	Manganese	mg/kg	279	1
CR-SCD2	Mercury	mg/kg	0.004	1
CR-SCD2	Nickel	mg/kg	8.45	1
CR-SCD2	Potassium	mg/kg	2350	1
CR-SCD2	Selenium	mg/kg	0.2	0
CR-SCD2	Silver	mg/kg	0.043	1
CR-SCD2	Sodium	mg/kg	79	1
CR-SCD2	Thallium	mg/kg	0.131	1
CR-SCD2	Vanadium	mg/kg	14	1
CR-SCD2	Zinc	mg/kg	49.5	1
CR-SCD3	Aluminum	mg/kg	9930	1
CR-SCD3	Antimony	mg/kg	0.178	1
CR-SCD3	Arsenic	mg/kg	9.09	1
CR-SCD3	Barium	mg/kg	82.2	1
CR-SCD3	Beryllium	mg/kg	0.34	1
CR-SCD3	Cadmium	mg/kg	0.084	0
CR-SCD3	Calcium	mg/kg	1930	1
CR-SCD3	Chromium	mg/kg	10.1	1
CR-SCD3	Cobalt	mg/kg	4.58	1
CR-SCD3	Copper	mg/kg	10.8	1
CR-SCD3	Iron	mg/kg	18100	1
CR-SCD3	Lead	mg/kg	6.85	1
CR-SCD3	Magnesium	mg/kg	7010	1
CR-SCD3	Manganese	mg/kg	317	1
CR-SCD3	Mercury	mg/kg	0.003	1
CR-SCD3	Nickel	mg/kg	8.63	1
CR-SCD3	Potassium	mg/kg	2550	1
CR-SCD3	Selenium	mg/kg	0.2	0
CR-SCD3	Silver	mg/kg	0.054	1
CR-SCD3	Sodium	mg/kg	68	1
CR-SCD3	Thallium	mg/kg	0.134	1
CR-SCD3	Vanadium	mg/kg	15.1	1
CR-SCD3	Zinc	mg/kg	45.7	1
CR-SCE1	Aluminum	mg/kg	8900	1
CR-SCE1	Antimony	mg/kg	0.164	1
CR-SCE1	Arsenic	mg/kg	8.14	1
CR-SCE1	Barium	mg/kg	55.3	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SCE1	Beryllium	mg/kg	0.31	1
CR-SCE1	Cadmium	mg/kg	0.233	1
CR-SCE1	Calcium	mg/kg	1860	1
CR-SCE1	Chromium	mg/kg	8.43	1
CR-SCE1	Cobalt	mg/kg	3.94	1
CR-SCE1	Copper	mg/kg	8.1	1
CR-SCE1	Iron	mg/kg	16600	1
CR-SCE1	Lead	mg/kg	8.71	1
CR-SCE1	Magnesium	mg/kg	6410	1
CR-SCE1	Manganese	mg/kg	239	1
CR-SCE1	Mercury	mg/kg	0.004	1
CR-SCE1	Nickel	mg/kg	8.14	1
CR-SCE1	Potassium	mg/kg	1720	1
CR-SCE1	Selenium	mg/kg	0.2	0
CR-SCE1	Silver	mg/kg	0.027	1
CR-SCE1	Sodium	mg/kg	70	1
CR-SCE1	Thallium	mg/kg	0.193	1
CR-SCE1	Vanadium	mg/kg	12.3	1
CR-SCE1	Zinc	mg/kg	70.1	1
CR-SCE2	Aluminum	mg/kg	9750	1
CR-SCE2	Antimony	mg/kg	0.211	1
CR-SCE2	Arsenic	mg/kg	8.91	1
CR-SCE2	Barium	mg/kg	68.4	1
CR-SCE2	Beryllium	mg/kg	0.34	1
CR-SCE2	Cadmium	mg/kg	0.132	1
CR-SCE2	Calcium	mg/kg	1870	1
CR-SCE2	Chromium	mg/kg	8.99	1
CR-SCE2	Cobalt	mg/kg	4.23	1
CR-SCE2	Copper	mg/kg	10	1
CR-SCE2	Iron	mg/kg	17100	1
CR-SCE2	Lead	mg/kg	7.29	1
CR-SCE2	Magnesium	mg/kg	6760	1
CR-SCE2	Manganese	mg/kg	287	1
CR-SCE2	Mercury	mg/kg	0.003	1
CR-SCE2	Nickel	mg/kg	8.07	1
CR-SCE2	Potassium	mg/kg	2260	1
CR-SCE2	Selenium	mg/kg	0.2	0
CR-SCE2	Silver	mg/kg	0.044	1
CR-SCE2	Sodium	mg/kg	67	1
CR-SCE2	Thallium	mg/kg	0.132	1
CR-SCE2	Vanadium	mg/kg	14.2	1
CR-SCE2	Zinc	mg/kg	47.3	1
CR-SCE3	Aluminum	mg/kg	9870	1
CR-SCE3	Antimony	mg/kg	0.194	1
CR-SCE3	Arsenic	mg/kg	9.61	1
CR-SCE3	Barium	mg/kg	65.7	1
CR-SCE3	Beryllium	mg/kg	0.34	1
CR-SCE3	Cadmium	mg/kg	0.08	0
CR-SCE3	Calcium	mg/kg	1840	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SCE3	Chromium	mg/kg	9.18	1
CR-SCE3	Cobalt	mg/kg	4.44	1
CR-SCE3	Copper	mg/kg	11	1
CR-SCE3	Iron	mg/kg	17600	1
CR-SCE3	Lead	mg/kg	6.85	1
CR-SCE3	Magnesium	mg/kg	6750	1
CR-SCE3	Manganese	mg/kg	355	1
CR-SCE3	Mercury	mg/kg	0.004	1
CR-SCE3	Nickel	mg/kg	8.16	1
CR-SCE3	Potassium	mg/kg	2240	1
CR-SCE3	Selenium	mg/kg	0.2	0
CR-SCE3	Silver	mg/kg	0.057	1
CR-SCE3	Sodium	mg/kg	72	1
CR-SCE3	Thallium	mg/kg	0.105	1
CR-SCE3	Vanadium	mg/kg	13	1
CR-SCE3	Zinc	mg/kg	43.2	1
CR-SRA2	Aluminum	mg/kg	12100	1
CR-SRA2	Antimony	mg/kg	0.21	1
CR-SRA2	Arsenic	mg/kg	1.59	1
CR-SRA2	Barium	mg/kg	124	1
CR-SRA2	Beryllium	mg/kg	0.43	1
CR-SRA2	Cadmium	mg/kg	0.169	1
CR-SRA2	Calcium	mg/kg	2220	1
CR-SRA2	Chromium	mg/kg	10.1	1
CR-SRA2	Cobalt	mg/kg	4.1	1
CR-SRA2	Copper	mg/kg	10.3	1
CR-SRA2	Iron	mg/kg	14500	1
CR-SRA2	Lead	mg/kg	5.81	1
CR-SRA2	Magnesium	mg/kg	2860	1
CR-SRA2	Manganese	mg/kg	146	1
CR-SRA2	Mercury	mg/kg	0.005	1
CR-SRA2	Nickel	mg/kg	8.98	1
CR-SRA2	Potassium	mg/kg	1320	1
CR-SRA2	Selenium	mg/kg	0.04	0
CR-SRA2	Silver	mg/kg	0.041	1
CR-SRA2	Sodium	mg/kg	138	1
CR-SRA2	Thallium	mg/kg	0.111	1
CR-SRA2	Vanadium	mg/kg	14.4	1
CR-SRA2	Zinc	mg/kg	33.6	1
CR-SRA3	Aluminum	mg/kg	9450	1
CR-SRA3	Antimony	mg/kg	0.137	1
CR-SRA3	Arsenic	mg/kg	1.58	1
CR-SRA3	Barium	mg/kg	90.9	1
CR-SRA3	Beryllium	mg/kg	0.38	1
CR-SRA3	Cadmium	mg/kg	0.095	1
CR-SRA3	Calcium	mg/kg	2460	1
CR-SRA3	Chromium	mg/kg	9.88	1
CR-SRA3	Cobalt	mg/kg	4.2	1
CR-SRA3	Copper	mg/kg	10.6	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SRA3	Iron	mg/kg	13700	1
CR-SRA3	Lead	mg/kg	4.96	1
CR-SRA3	Magnesium	mg/kg	2830	1
CR-SRA3	Manganese	mg/kg	186	1
CR-SRA3	Mercury	mg/kg	0.004	1
CR-SRA3	Nickel	mg/kg	8.45	1
CR-SRA3	Potassium	mg/kg	1270	1
CR-SRA3	Selenium	mg/kg	0.03	0
CR-SRA3	Silver	mg/kg	0.052	1
CR-SRA3	Sodium	mg/kg	151	1
CR-SRA3	Thallium	mg/kg	0.096	1
CR-SRA3	Vanadium	mg/kg	14.7	1
CR-SRA3	Zinc	mg/kg	27.3	1
CR-SRB2	Aluminum	mg/kg	9840	1
CR-SRB2	Antimony	mg/kg	0.276	1
CR-SRB2	Arsenic	mg/kg	2.66	1
CR-SRB2	Barium	mg/kg	93.1	1
CR-SRB2	Beryllium	mg/kg	0.39	1
CR-SRB2	Cadmium	mg/kg	0.257	1
CR-SRB2	Calcium	mg/kg	2700	1
CR-SRB2	Chromium	mg/kg	10.5	1
CR-SRB2	Cobalt	mg/kg	4.1	1
CR-SRB2	Copper	mg/kg	10.9	1
CR-SRB2	Iron	mg/kg	14200	1
CR-SRB2	Lead	mg/kg	9.58	1
CR-SRB2	Magnesium	mg/kg	3050	1
CR-SRB2	Manganese	mg/kg	147	1
CR-SRB2	Mercury	mg/kg	0.009	1
CR-SRB2	Nickel	mg/kg	8.69	1
CR-SRB2	Potassium	mg/kg	1330	1
CR-SRB2	Selenium	mg/kg	0.03	0
CR-SRB2	Silver	mg/kg	0.064	1
CR-SRB2	Sodium	mg/kg	145	1
CR-SRB2	Thallium	mg/kg	0.103	1
CR-SRB2	Vanadium	mg/kg	15.3	1
CR-SRB2	Zinc	mg/kg	53.1	1
CR-SRB3	Aluminum	mg/kg	7450	1
CR-SRB3	Antimony	mg/kg	0.141	1
CR-SRB3	Arsenic	mg/kg	1.54	1
CR-SRB3	Barium	mg/kg	66.5	1
CR-SRB3	Beryllium	mg/kg	0.34	1
CR-SRB3	Cadmium	mg/kg	0.15	1
CR-SRB3	Calcium	mg/kg	2780	1
CR-SRB3	Chromium	mg/kg	9.79	1
CR-SRB3	Cobalt	mg/kg	4.7	1
CR-SRB3	Copper	mg/kg	10.5	1
CR-SRB3	Iron	mg/kg	15100	1
CR-SRB3	Lead	mg/kg	5.23	1
CR-SRB3	Magnesium	mg/kg	3230	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SRB3	Manganese	mg/kg	168	1
CR-SRB3	Mercury	mg/kg	0.003	1
CR-SRB3	Nickel	mg/kg	9.81	1
CR-SRB3	Potassium	mg/kg	1350	1
CR-SRB3	Selenium	mg/kg	0.03	0
CR-SRB3	Silver	mg/kg	0.04	1
CR-SRB3	Sodium	mg/kg	145	1
CR-SRB3	Thallium	mg/kg	0.091	1
CR-SRB3	Vanadium	mg/kg	14.7	1
CR-SRB3	Zinc	mg/kg	32.6	1
CR-SRC3	Aluminum	mg/kg	11500	1
CR-SRC3	Antimony	mg/kg	0.14	1
CR-SRC3	Arsenic	mg/kg	1.51	1
CR-SRC3	Barium	mg/kg	119	1
CR-SRC3	Beryllium	mg/kg	0.46	1
CR-SRC3	Cadmium	mg/kg	0.258	1
CR-SRC3	Calcium	mg/kg	2480	1
CR-SRC3	Chromium	mg/kg	13.6	1
CR-SRC3	Cobalt	mg/kg	5.6	1
CR-SRC3	Copper	mg/kg	11.8	1
CR-SRC3	Iron	mg/kg	16100	1
CR-SRC3	Lead	mg/kg	7.52	1
CR-SRC3	Magnesium	mg/kg	3740	1
CR-SRC3	Manganese	mg/kg	328	1
CR-SRC3	Mercury	mg/kg	0.005	1
CR-SRC3	Nickel	mg/kg	11.8	1
CR-SRC3	Potassium	mg/kg	2100	1
CR-SRC3	Selenium	mg/kg	0.04	0
CR-SRC3	Silver	mg/kg	0.04	1
CR-SRC3	Sodium	mg/kg	135	1
CR-SRC3	Thallium	mg/kg	0.134	1
CR-SRC3	Vanadium	mg/kg	18.1	1
CR-SRC3	Zinc	mg/kg	49.3	1
CR-SRD1	Aluminum	mg/kg	11600	1
CR-SRD1	Antimony	mg/kg	0.114	1
CR-SRD1	Arsenic	mg/kg	1.78	1
CR-SRD1	Barium	mg/kg	113	1
CR-SRD1	Beryllium	mg/kg	0.48	1
CR-SRD1	Cadmium	mg/kg	0.188	1
CR-SRD1	Calcium	mg/kg	2790	1
CR-SRD1	Chromium	mg/kg	13.4	1
CR-SRD1	Cobalt	mg/kg	5.4	1
CR-SRD1	Copper	mg/kg	14.1	1
CR-SRD1	Iron	mg/kg	16900	1
CR-SRD1	Lead	mg/kg	9.32	1
CR-SRD1	Magnesium	mg/kg	3830	1
CR-SRD1	Manganese	mg/kg	308	1
CR-SRD1	Mercury	mg/kg	0.011	1
CR-SRD1	Nickel	mg/kg	12	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SRD1	Potassium	mg/kg	2010	1
CR-SRD1	Selenium	mg/kg	0.03	0
CR-SRD1	Silver	mg/kg	0.059	1
CR-SRD1	Sodium	mg/kg	136	1
CR-SRD1	Thallium	mg/kg	0.134	1
CR-SRD1	Vanadium	mg/kg	18.9	1
CR-SRD1	Zinc	mg/kg	51.5	1
CR-SRD2	Aluminum	mg/kg	11800	1
CR-SRD2	Antimony	mg/kg	0.087	0
CR-SRD2	Arsenic	mg/kg	1.7	1
CR-SRD2	Barium	mg/kg	127	1
CR-SRD2	Beryllium	mg/kg	0.49	1
CR-SRD2	Cadmium	mg/kg	0.139	1
CR-SRD2	Calcium	mg/kg	3120	1
CR-SRD2	Chromium	mg/kg	12.3	1
CR-SRD2	Cobalt	mg/kg	5.4	1
CR-SRD2	Copper	mg/kg	13.8	1
CR-SRD2	Iron	mg/kg	16700	1
CR-SRD2	Lead	mg/kg	6.81	1
CR-SRD2	Magnesium	mg/kg	3810	1
CR-SRD2	Manganese	mg/kg	318	1
CR-SRD2	Mercury	mg/kg	0.004	1
CR-SRD2	Nickel	mg/kg	11.9	1
CR-SRD2	Potassium	mg/kg	1940	1
CR-SRD2	Selenium	mg/kg	0.04	0
CR-SRD2	Silver	mg/kg	0.089	1
CR-SRD2	Sodium	mg/kg	156	1
CR-SRD2	Thallium	mg/kg	0.125	1
CR-SRD2	Vanadium	mg/kg	18.7	1
CR-SRD2	Zinc	mg/kg	47.4	1
CR-SRD3	Aluminum	mg/kg	12600	1
CR-SRD3	Antimony	mg/kg	0.094	0
CR-SRD3	Arsenic	mg/kg	1.85	1
CR-SRD3	Barium	mg/kg	134	1
CR-SRD3	Beryllium	mg/kg	0.49	1
CR-SRD3	Cadmium	mg/kg	0.139	1
CR-SRD3	Calcium	mg/kg	3190	1
CR-SRD3	Chromium	mg/kg	13.4	1
CR-SRD3	Cobalt	mg/kg	5.6	1
CR-SRD3	Copper	mg/kg	14.4	1
CR-SRD3	Iron	mg/kg	17100	1
CR-SRD3	Lead	mg/kg	6.66	1
CR-SRD3	Magnesium	mg/kg	3880	1
CR-SRD3	Manganese	mg/kg	267	1
CR-SRD3	Mercury	mg/kg	0.005	1
CR-SRD3	Nickel	mg/kg	12.2	1
CR-SRD3	Potassium	mg/kg	1860	1
CR-SRD3	Selenium	mg/kg	0.03	0
CR-SRD3	Silver	mg/kg	0.113	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-SRD3	Sodium	mg/kg	179	1
CR-SRD3	Thallium	mg/kg	0.12	1
CR-SRD3	Vanadium	mg/kg	19	1
CR-SRD3	Zinc	mg/kg	48.9	1
CR-SRE1	Aluminum	mg/kg	7300	1
CR-SRE1	Antimony	mg/kg	0.125	1
CR-SRE1	Arsenic	mg/kg	1.76	1
CR-SRE1	Barium	mg/kg	84.8	1
CR-SRE1	Beryllium	mg/kg	0.35	1
CR-SRE1	Cadmium	mg/kg	0.204	1
CR-SRE1	Calcium	mg/kg	11500	1
CR-SRE1	Chromium	mg/kg	12.9	1
CR-SRE1	Cobalt	mg/kg	5.1	1
CR-SRE1	Copper	mg/kg	13.7	1
CR-SRE1	Iron	mg/kg	15400	1
CR-SRE1	Lead	mg/kg	7.6	1
CR-SRE1	Magnesium	mg/kg	5940	1
CR-SRE1	Manganese	mg/kg	218	1
CR-SRE1	Mercury	mg/kg	0.008	1
CR-SRE1	Nickel	mg/kg	12.3	1
CR-SRE1	Potassium	mg/kg	1320	1
CR-SRE1	Selenium	mg/kg	0.03	0
CR-SRE1	Silver	mg/kg	0.063	1
CR-SRE1	Sodium	mg/kg	165	1
CR-SRE1	Thallium	mg/kg	0.132	1
CR-SRE1	Vanadium	mg/kg	17.9	1
CR-SRE1	Zinc	mg/kg	46.5	1
CR-SRE2	Aluminum	mg/kg	7600	1
CR-SRE2	Antimony	mg/kg	0.117	1
CR-SRE2	Arsenic	mg/kg	1.86	1
CR-SRE2	Barium	mg/kg	96.1	1
CR-SRE2	Beryllium	mg/kg	0.37	1
CR-SRE2	Cadmium	mg/kg	0.162	1
CR-SRE2	Calcium	mg/kg	13500	1
CR-SRE2	Chromium	mg/kg	14.2	1
CR-SRE2	Cobalt	mg/kg	5.5	1
CR-SRE2	Copper	mg/kg	14.4	1
CR-SRE2	Iron	mg/kg	16400	1
CR-SRE2	Lead	mg/kg	5.62	1
CR-SRE2	Magnesium	mg/kg	6670	1
CR-SRE2	Manganese	mg/kg	254	1
CR-SRE2	Mercury	mg/kg	0.004	1
CR-SRE2	Nickel	mg/kg	13.1	1
CR-SRE2	Potassium	mg/kg	1410	1
CR-SRE2	Selenium	mg/kg	0.03	0
CR-SRE2	Silver	mg/kg	0.06	1
CR-SRE2	Sodium	mg/kg	196	1
CR-SRE2	Thallium	mg/kg	0.133	1
CR-SRE2	Vanadium	mg/kg	19.6	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SRE2	Zinc	mg/kg	43.9	1
CR-SRE3	Aluminum	mg/kg	8130	1
CR-SRE3	Antimony	mg/kg	0.14	1
CR-SRE3	Arsenic	mg/kg	2.03	1
CR-SRE3	Barium	mg/kg	104	1
CR-SRE3	Beryllium	mg/kg	0.38	1
CR-SRE3	Cadmium	mg/kg	0.158	1
CR-SRE3	Calcium	mg/kg	14200	1
CR-SRE3	Chromium	mg/kg	14.9	1
CR-SRE3	Cobalt	mg/kg	5.8	1
CR-SRE3	Copper	mg/kg	15.5	1
CR-SRE3	Iron	mg/kg	16700	1
CR-SRE3	Lead	mg/kg	5.72	1
CR-SRE3	Magnesium	mg/kg	7020	1
CR-SRE3	Manganese	mg/kg	249	1
CR-SRE3	Mercury	mg/kg	0.005	1
CR-SRE3	Nickel	mg/kg	13.9	1
CR-SRE3	Potassium	mg/kg	1540	1
CR-SRE3	Selenium	mg/kg	0.03	0
CR-SRE3	Silver	mg/kg	0.066	1
CR-SRE3	Sodium	mg/kg	200	1
CR-SRE3	Thallium	mg/kg	0.142	1
CR-SRE3	Vanadium	mg/kg	21.2	1
CR-SRE3	Zinc	mg/kg	46.4	1
CR-SWA1	Aluminum	mg/kg	6470	1
CR-SWA1	Antimony	mg/kg	0.156	1
CR-SWA1	Arsenic	mg/kg	4.78	1
CR-SWA1	Barium	mg/kg	59.5	1
CR-SWA1	Beryllium	mg/kg	0.27	1
CR-SWA1	Cadmium	mg/kg	0.115	1
CR-SWA1	Calcium	mg/kg	8060	1
CR-SWA1	Chromium	mg/kg	12.2	1
CR-SWA1	Cobalt	mg/kg	4.53	1
CR-SWA1	Copper	mg/kg	8.6	1
CR-SWA1	Iron	mg/kg	13200	1
CR-SWA1	Lead	mg/kg	5.59	1
CR-SWA1	Magnesium	mg/kg	5250	1
CR-SWA1	Manganese	mg/kg	241	1
CR-SWA1	Mercury	mg/kg	0.002	1
CR-SWA1	Nickel	mg/kg	8.53	1
CR-SWA1	Potassium	mg/kg	1270	1
CR-SWA1	Selenium	mg/kg	0.2	0
CR-SWA1	Silver	mg/kg	0.047	1
CR-SWA1	Sodium	mg/kg	149	1
CR-SWA1	Thallium	mg/kg	0.112	1
CR-SWA1	Vanadium	mg/kg	14.7	1
CR-SWA1	Zinc	mg/kg	37.5	1
CR-SWA2	Aluminum	mg/kg	6540	1
CR-SWA2	Antimony	mg/kg	0.146	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
CR-SWA2	Arsenic	mg/kg	5.26	1
CR-SWA2	Barium	mg/kg	63.5	1
CR-SWA2	Beryllium	mg/kg	0.28	1
CR-SWA2	Cadmium	mg/kg	0.129	1
CR-SWA2	Calcium	mg/kg	9210	1
CR-SWA2	Chromium	mg/kg	8.81	1
CR-SWA2	Cobalt	mg/kg	4.26	1
CR-SWA2	Copper	mg/kg	9.2	1
CR-SWA2	Iron	mg/kg	13600	1
CR-SWA2	Lead	mg/kg	6.19	1
CR-SWA2	Magnesium	mg/kg	5170	1
CR-SWA2	Manganese	mg/kg	245	1
CR-SWA2	Mercury	mg/kg	0.003	1
CR-SWA2	Nickel	mg/kg	7.78	1
CR-SWA2	Potassium	mg/kg	1340	1
CR-SWA2	Selenium	mg/kg	0.2	0
CR-SWA2	Silver	mg/kg	0.047	1
CR-SWA2	Sodium	mg/kg	131	1
CR-SWA2	Thallium	mg/kg	0.127	1
CR-SWA2	Vanadium	mg/kg	13.8	1
CR-SWA2	Zinc	mg/kg	36.3	1
CR-SWA3	Aluminum	mg/kg	6780	1
CR-SWA3	Antimony	mg/kg	0.162	1
CR-SWA3	Arsenic	mg/kg	5.31	1
CR-SWA3	Barium	mg/kg	64.1	1
CR-SWA3	Beryllium	mg/kg	0.28	1
CR-SWA3	Cadmium	mg/kg	0.103	1
CR-SWA3	Calcium	mg/kg	9390	1
CR-SWA3	Chromium	mg/kg	8.48	1
CR-SWA3	Cobalt	mg/kg	4.35	1
CR-SWA3	Copper	mg/kg	8.4	1
CR-SWA3	Iron	mg/kg	13700	1
CR-SWA3	Lead	mg/kg	5.86	1
CR-SWA3	Magnesium	mg/kg	5620	1
CR-SWA3	Manganese	mg/kg	254	1
CR-SWA3	Mercury	mg/kg	0.003	1
CR-SWA3	Nickel	mg/kg	7.83	1
CR-SWA3	Potassium	mg/kg	1390	1
CR-SWA3	Selenium	mg/kg	0.2	0
CR-SWA3	Silver	mg/kg	0.049	1
CR-SWA3	Sodium	mg/kg	134	1
CR-SWA3	Thallium	mg/kg	0.118	1
CR-SWA3	Vanadium	mg/kg	13.8	1
CR-SWA3	Zinc	mg/kg	36.4	1
CR-SWB1	Aluminum	mg/kg	7870	1
CR-SWB1	Antimony	mg/kg	0.159	1
CR-SWB1	Arsenic	mg/kg	4.65	1
CR-SWB1	Barium	mg/kg	62.4	1
CR-SWB1	Beryllium	mg/kg	0.33	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SWB1	Cadmium	mg/kg	0.301	1
CR-SWB1	Calcium	mg/kg	3870	1
CR-SWB1	Chromium	mg/kg	9.76	1
CR-SWB1	Cobalt	mg/kg	4.75	1
CR-SWB1	Copper	mg/kg	9.5	1
CR-SWB1	Iron	mg/kg	15300	1
CR-SWB1	Lead	mg/kg	7.9	1
CR-SWB1	Magnesium	mg/kg	5640	1
CR-SWB1	Manganese	mg/kg	207	1
CR-SWB1	Mercury	mg/kg	0.008	1
CR-SWB1	Nickel	mg/kg	8.92	1
CR-SWB1	Potassium	mg/kg	1420	1
CR-SWB1	Selenium	mg/kg	0.2	0
CR-SWB1	Silver	mg/kg	0.048	1
CR-SWB1	Sodium	mg/kg	149	1
CR-SWB1	Thallium	mg/kg	0.166	1
CR-SWB1	Vanadium	mg/kg	14.1	1
CR-SWB1	Zinc	mg/kg	60.8	1
CR-SWB2	Aluminum	mg/kg	6910	1
CR-SWB2	Antimony	mg/kg	0.224	1
CR-SWB2	Arsenic	mg/kg	5.9	1
CR-SWB2	Barium	mg/kg	50.7	1
CR-SWB2	Beryllium	mg/kg	0.3	1
CR-SWB2	Cadmium	mg/kg	0.199	1
CR-SWB2	Calcium	mg/kg	2870	1
CR-SWB2	Chromium	mg/kg	7.74	1
CR-SWB2	Cobalt	mg/kg	4.38	1
CR-SWB2	Copper	mg/kg	9.5	1
CR-SWB2	Iron	mg/kg	14700	1
CR-SWB2	Lead	mg/kg	6.81	1
CR-SWB2	Magnesium	mg/kg	4820	1
CR-SWB2	Manganese	mg/kg	206	1
CR-SWB2	Mercury	mg/kg	0.004	1
CR-SWB2	Nickel	mg/kg	6.86	1
CR-SWB2	Potassium	mg/kg	1400	1
CR-SWB2	Selenium	mg/kg	0.2	0
CR-SWB2	Silver	mg/kg	0.031	1
CR-SWB2	Sodium	mg/kg	103	1
CR-SWB2	Thallium	mg/kg	0.106	1
CR-SWB2	Vanadium	mg/kg	11.8	1
CR-SWB2	Zinc	mg/kg	47	1
CR-SWB3	Aluminum	mg/kg	6830	1
CR-SWB3	Antimony	mg/kg	0.226	1
CR-SWB3	Arsenic	mg/kg	5.26	1
CR-SWB3	Barium	mg/kg	56.5	1
CR-SWB3	Beryllium	mg/kg	0.32	1
CR-SWB3	Cadmium	mg/kg	0.193	1
CR-SWB3	Calcium	mg/kg	3470	1
CR-SWB3	Chromium	mg/kg	7.36	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SWB3	Cobalt	mg/kg	4.22	1
CR-SWB3	Copper	mg/kg	8.7	1
CR-SWB3	Iron	mg/kg	15000	1
CR-SWB3	Lead	mg/kg	8.54	1
CR-SWB3	Magnesium	mg/kg	4890	1
CR-SWB3	Manganese	mg/kg	210	1
CR-SWB3	Mercury	mg/kg	0.006	1
CR-SWB3	Nickel	mg/kg	6.47	1
CR-SWB3	Potassium	mg/kg	1390	1
CR-SWB3	Selenium	mg/kg	0.2	0
CR-SWB3	Silver	mg/kg	0.035	1
CR-SWB3	Sodium	mg/kg	110	1
CR-SWB3	Thallium	mg/kg	0.112	1
CR-SWB3	Vanadium	mg/kg	13.3	1
CR-SWB3	Zinc	mg/kg	54.7	1
CR-SWC1	Aluminum	mg/kg	6660	1
CR-SWC1	Antimony	mg/kg	0.19	1
CR-SWC1	Arsenic	mg/kg	4.93	1
CR-SWC1	Barium	mg/kg	50.4	1
CR-SWC1	Beryllium	mg/kg	0.31	1
CR-SWC1	Cadmium	mg/kg	0.205	1
CR-SWC1	Calcium	mg/kg	3480	1
CR-SWC1	Chromium	mg/kg	9.04	1
CR-SWC1	Cobalt	mg/kg	4.07	1
CR-SWC1	Copper	mg/kg	8.3	1
CR-SWC1	Iron	mg/kg	14600	1
CR-SWC1	Lead	mg/kg	7.89	1
CR-SWC1	Magnesium	mg/kg	5120	1
CR-SWC1	Manganese	mg/kg	183	1
CR-SWC1	Mercury	mg/kg	0.004	1
CR-SWC1	Nickel	mg/kg	7.49	1
CR-SWC1	Potassium	mg/kg	1330	1
CR-SWC1	Selenium	mg/kg	0.2	0
CR-SWC1	Silver	mg/kg	0.035	1
CR-SWC1	Sodium	mg/kg	140	1
CR-SWC1	Thallium	mg/kg	0.142	1
CR-SWC1	Vanadium	mg/kg	14.5	1
CR-SWC1	Zinc	mg/kg	50.8	1
CR-SWC2	Aluminum	mg/kg	5840	1
CR-SWC2	Antimony	mg/kg	0.15	1
CR-SWC2	Arsenic	mg/kg	5.36	1
CR-SWC2	Barium	mg/kg	49.8	1
CR-SWC2	Beryllium	mg/kg	0.28	1
CR-SWC2	Cadmium	mg/kg	0.134	1
CR-SWC2	Calcium	mg/kg	3780	1
CR-SWC2	Chromium	mg/kg	5.9	1
CR-SWC2	Cobalt	mg/kg	3.57	1
CR-SWC2	Copper	mg/kg	11.4	1
CR-SWC2	Iron	mg/kg	14600	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SWC2	Lead	mg/kg	4.97	1
CR-SWC2	Magnesium	mg/kg	4610	1
CR-SWC2	Manganese	mg/kg	240	1
CR-SWC2	Mercury	mg/kg	0.004	1
CR-SWC2	Nickel	mg/kg	5.41	1
CR-SWC2	Potassium	mg/kg	1230	1
CR-SWC2	Selenium	mg/kg	0.2	0
CR-SWC2	Silver	mg/kg	0.028	1
CR-SWC2	Sodium	mg/kg	81	1
CR-SWC2	Thallium	mg/kg	0.086	1
CR-SWC2	Vanadium	mg/kg	11.5	1
CR-SWC2	Zinc	mg/kg	37.9	1
CR-SWC3-1	Aluminum	mg/kg	5300	1
CR-SWC3-1	Antimony	mg/kg	0.122	1
CR-SWC3-1	Arsenic	mg/kg	3.81	1
CR-SWC3-1	Barium	mg/kg	43.6	1
CR-SWC3-1	Beryllium	mg/kg	0.255	1
CR-SWC3-1	Cadmium	mg/kg	0.08	1
CR-SWC3-1	Calcium	mg/kg	5205	1
CR-SWC3-1	Chromium	mg/kg	5.5	1
CR-SWC3-1	Cobalt	mg/kg	3.76	1
CR-SWC3-1	Copper	mg/kg	5.45	1
CR-SWC3-1	Iron	mg/kg	12450	1
CR-SWC3-1	Lead	mg/kg	4.57	1
CR-SWC3-1	Magnesium	mg/kg	3925	1
CR-SWC3-1	Manganese	mg/kg	212	1
CR-SWC3-1	Mercury	mg/kg	0.004	1
CR-SWC3-1	Nickel	mg/kg	4.875	1
CR-SWC3-1	Potassium	mg/kg	1053	1
CR-SWC3-1	Selenium	mg/kg	0.2	0
CR-SWC3-1	Silver	mg/kg	0.0235	1
CR-SWC3-1	Sodium	mg/kg	96.5	1
CR-SWC3-1	Thallium	mg/kg	0.071	1
CR-SWC3-1	Vanadium	mg/kg	10.65	1
CR-SWC3-1	Zinc	mg/kg	30.55	1
CR-SWD1	Aluminum	mg/kg	6990	1
CR-SWD1	Antimony	mg/kg	0.166	1
CR-SWD1	Arsenic	mg/kg	7.08	1
CR-SWD1	Barium	mg/kg	57.9	1
CR-SWD1	Beryllium	mg/kg	0.29	1
CR-SWD1	Cadmium	mg/kg	0.08	1
CR-SWD1	Calcium	mg/kg	8980	1
CR-SWD1	Chromium	mg/kg	8.24	1
CR-SWD1	Cobalt	mg/kg	3.95	1
CR-SWD1	Copper	mg/kg	7.9	1
CR-SWD1	Iron	mg/kg	14300	1
CR-SWD1	Lead	mg/kg	6.06	1
CR-SWD1	Magnesium	mg/kg	6160	1
CR-SWD1	Manganese	mg/kg	264	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SWD1	Mercury	mg/kg	0.003	1
CR-SWD1	Nickel	mg/kg	7.43	1
CR-SWD1	Potassium	mg/kg	1340	1
CR-SWD1	Selenium	mg/kg	0.2	0
CR-SWD1	Silver	mg/kg	0.036	1
CR-SWD1	Sodium	mg/kg	120	1
CR-SWD1	Thallium	mg/kg	0.081	1
CR-SWD1	Vanadium	mg/kg	12.4	1
CR-SWD1	Zinc	mg/kg	33.8	1
CR-SWD2	Aluminum	mg/kg	6680	1
CR-SWD2	Antimony	mg/kg	0.149	1
CR-SWD2	Arsenic	mg/kg	5.33	1
CR-SWD2	Barium	mg/kg	53.8	1
CR-SWD2	Beryllium	mg/kg	0.3	1
CR-SWD2	Cadmium	mg/kg	0.071	1
CR-SWD2	Calcium	mg/kg	11900	1
CR-SWD2	Chromium	mg/kg	6.79	1
CR-SWD2	Cobalt	mg/kg	3.74	1
CR-SWD2	Copper	mg/kg	8.9	1
CR-SWD2	Iron	mg/kg	13800	1
CR-SWD2	Lead	mg/kg	4.86	1
CR-SWD2	Magnesium	mg/kg	6360	1
CR-SWD2	Manganese	mg/kg	256	1
CR-SWD2	Mercury	mg/kg	0.002	0
CR-SWD2	Nickel	mg/kg	6.71	1
CR-SWD2	Potassium	mg/kg	1340	1
CR-SWD2	Selenium	mg/kg	0.2	0
CR-SWD2	Silver	mg/kg	0.038	1
CR-SWD2	Sodium	mg/kg	113	1
CR-SWD2	Thallium	mg/kg	0.078	1
CR-SWD2	Vanadium	mg/kg	11	1
CR-SWD2	Zinc	mg/kg	33.5	1
CR-SWD3	Aluminum	mg/kg	7010	1
CR-SWD3	Antimony	mg/kg	0.134	1
CR-SWD3	Arsenic	mg/kg	5.24	1
CR-SWD3	Barium	mg/kg	58.5	1
CR-SWD3	Beryllium	mg/kg	0.27	1
CR-SWD3	Cadmium	mg/kg	0.082	1
CR-SWD3	Calcium	mg/kg	9700	1
CR-SWD3	Chromium	mg/kg	7.83	1
CR-SWD3	Cobalt	mg/kg	4	1
CR-SWD3	Copper	mg/kg	7.2	1
CR-SWD3	Iron	mg/kg	14000	1
CR-SWD3	Lead	mg/kg	5.68	1
CR-SWD3	Magnesium	mg/kg	6030	1
CR-SWD3	Manganese	mg/kg	253	1
CR-SWD3	Mercury	mg/kg	0.002	0
CR-SWD3	Nickel	mg/kg	7.59	1
CR-SWD3	Potassium	mg/kg	1370	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SWD3	Selenium	mg/kg	0.2	0
CR-SWD3	Silver	mg/kg	0.034	1
CR-SWD3	Sodium	mg/kg	121	1
CR-SWD3	Thallium	mg/kg	0.095	1
CR-SWD3	Vanadium	mg/kg	11.5	1
CR-SWD3	Zinc	mg/kg	33.3	1
CR-SWE1	Aluminum	mg/kg	6280	1
CR-SWE1	Antimony	mg/kg	0.142	1
CR-SWE1	Arsenic	mg/kg	7.49	1
CR-SWE1	Barium	mg/kg	46.9	1
CR-SWE1	Beryllium	mg/kg	0.26	1
CR-SWE1	Cadmium	mg/kg	0.134	1
CR-SWE1	Calcium	mg/kg	8660	1
CR-SWE1	Chromium	mg/kg	7.45	1
CR-SWE1	Cobalt	mg/kg	3.68	1
CR-SWE1	Copper	mg/kg	7.7	1
CR-SWE1	Iron	mg/kg	12600	1
CR-SWE1	Lead	mg/kg	9.04	1
CR-SWE1	Magnesium	mg/kg	5440	1
CR-SWE1	Manganese	mg/kg	206	1
CR-SWE1	Mercury	mg/kg	0.002	1
CR-SWE1	Nickel	mg/kg	7.15	1
CR-SWE1	Potassium	mg/kg	1120	1
CR-SWE1	Selenium	mg/kg	0.2	0
CR-SWE1	Silver	mg/kg	0.045	1
CR-SWE1	Sodium	mg/kg	96	1
CR-SWE1	Thallium	mg/kg	0.109	1
CR-SWE1	Vanadium	mg/kg	12.1	1
CR-SWE1	Zinc	mg/kg	32.5	1
CR-SWE2	Aluminum	mg/kg	7010	1
CR-SWE2	Antimony	mg/kg	0.166	1
CR-SWE2	Arsenic	mg/kg	5.25	1
CR-SWE2	Barium	mg/kg	54.2	1
CR-SWE2	Beryllium	mg/kg	0.3	1
CR-SWE2	Cadmium	mg/kg	0.195	1
CR-SWE2	Calcium	mg/kg	8070	1
CR-SWE2	Chromium	mg/kg	9.34	1
CR-SWE2	Cobalt	mg/kg	4.09	1
CR-SWE2	Copper	mg/kg	13.7	1
CR-SWE2	Iron	mg/kg	14600	1
CR-SWE2	Lead	mg/kg	6.17	1
CR-SWE2	Magnesium	mg/kg	5830	1
CR-SWE2	Manganese	mg/kg	225	1
CR-SWE2	Mercury	mg/kg	0.003	1
CR-SWE2	Nickel	mg/kg	7.65	1
CR-SWE2	Potassium	mg/kg	1350	1
CR-SWE2	Selenium	mg/kg	0.2	0
CR-SWE2	Silver	mg/kg	0.041	1
CR-SWE2	Sodium	mg/kg	135	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-SWE2	Thallium	mg/kg	0.129	1
CR-SWE2	Vanadium	mg/kg	12.4	1
CR-SWE2	Zinc	mg/kg	44.6	1
CR-SWE3	Aluminum	mg/kg	6990	1
CR-SWE3	Antimony	mg/kg	0.153	1
CR-SWE3	Arsenic	mg/kg	5.23	1
CR-SWE3	Barium	mg/kg	56.7	1
CR-SWE3	Beryllium	mg/kg	0.28	1
CR-SWE3	Cadmium	mg/kg	0.235	1
CR-SWE3	Calcium	mg/kg	7990	1
CR-SWE3	Chromium	mg/kg	8.7	1
CR-SWE3	Cobalt	mg/kg	3.73	1
CR-SWE3	Copper	mg/kg	8.2	1
CR-SWE3	Iron	mg/kg	13800	1
CR-SWE3	Lead	mg/kg	6.58	1
CR-SWE3	Magnesium	mg/kg	5570	1
CR-SWE3	Manganese	mg/kg	238	1
CR-SWE3	Mercury	mg/kg	0.004	1
CR-SWE3	Nickel	mg/kg	7.24	1
CR-SWE3	Potassium	mg/kg	1260	1
CR-SWE3	Selenium	mg/kg	0.2	0
CR-SWE3	Silver	mg/kg	0.037	1
CR-SWE3	Sodium	mg/kg	134	1
CR-SWE3	Thallium	mg/kg	0.127	1
CR-SWE3	Vanadium	mg/kg	13.9	1
CR-SWE3	Zinc	mg/kg	41.9	1
CR-WBA3	Aluminum	mg/kg	8450	1
CR-WBA3	Antimony	mg/kg	0.076	1
CR-WBA3	Arsenic	mg/kg	1.47	1
CR-WBA3	Barium	mg/kg	90.2	1
CR-WBA3	Beryllium	mg/kg	0.29	1
CR-WBA3	Cadmium	mg/kg	0.321	1
CR-WBA3	Calcium	mg/kg	3180	1
CR-WBA3	Chromium	mg/kg	15.6	1
CR-WBA3	Cobalt	mg/kg	6	1
CR-WBA3	Copper	mg/kg	14.8	1
CR-WBA3	Iron	mg/kg	16800	1
CR-WBA3	Lead	mg/kg	12.7	1
CR-WBA3	Magnesium	mg/kg	4580	1
CR-WBA3	Manganese	mg/kg	317	1
CR-WBA3	Mercury	mg/kg	0.028	1
CR-WBA3	Nickel	mg/kg	15.2	1
CR-WBA3	Potassium	mg/kg	2080	1
CR-WBA3	Selenium	mg/kg	0.2	1
CR-WBA3	Silver	mg/kg	0.097	1
CR-WBA3	Sodium	mg/kg	75	1
CR-WBA3	Thallium	mg/kg	0.122	1
CR-WBA3	Vanadium	mg/kg	19.2	1
CR-WBA3	Zinc	mg/kg	61.3	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WBB3	Aluminum	mg/kg	5360	1
CR-WBB3	Antimony	mg/kg	0.08	1
CR-WBB3	Arsenic	mg/kg	1.44	1
CR-WBB3	Barium	mg/kg	56.7	1
CR-WBB3	Beryllium	mg/kg	0.19	1
CR-WBB3	Cadmium	mg/kg	0.185	1
CR-WBB3	Calcium	mg/kg	2560	1
CR-WBB3	Chromium	mg/kg	11.9	1
CR-WBB3	Cobalt	mg/kg	4.12	1
CR-WBB3	Copper	mg/kg	9.3	1
CR-WBB3	Iron	mg/kg	11700	1
CR-WBB3	Lead	mg/kg	5.55	1
CR-WBB3	Magnesium	mg/kg	3120	1
CR-WBB3	Manganese	mg/kg	180	1
CR-WBB3	Mercury	mg/kg	0.006	1
CR-WBB3	Nickel	mg/kg	10.6	1
CR-WBB3	Potassium	mg/kg	1380	1
CR-WBB3	Selenium	mg/kg	0.2	0
CR-WBB3	Silver	mg/kg	0.059	0
CR-WBB3	Sodium	mg/kg	66	1
CR-WBB3	Thallium	mg/kg	0.096	1
CR-WBB3	Vanadium	mg/kg	15.9	1
CR-WBB3	Zinc	mg/kg	37.7	1
CR-WBC2	Aluminum	mg/kg	8260	1
CR-WBC2	Antimony	mg/kg	0.106	1
CR-WBC2	Arsenic	mg/kg	1.71	1
CR-WBC2	Barium	mg/kg	91.4	1
CR-WBC2	Beryllium	mg/kg	0.3	1
CR-WBC2	Cadmium	mg/kg	0.248	1
CR-WBC2	Calcium	mg/kg	3570	1
CR-WBC2	Chromium	mg/kg	15.3	1
CR-WBC2	Cobalt	mg/kg	5.76	1
CR-WBC2	Copper	mg/kg	13.8	1
CR-WBC2	Iron	mg/kg	16100	1
CR-WBC2	Lead	mg/kg	7.62	1
CR-WBC2	Magnesium	mg/kg	4500	1
CR-WBC2	Manganese	mg/kg	285	1
CR-WBC2	Mercury	mg/kg	0.003	1
CR-WBC2	Nickel	mg/kg	14.6	1
CR-WBC2	Potassium	mg/kg	2150	1
CR-WBC2	Selenium	mg/kg	0.2	1
CR-WBC2	Silver	mg/kg	0.107	1
CR-WBC2	Sodium	mg/kg	90	1
CR-WBC2	Thallium	mg/kg	0.111	1
CR-WBC2	Vanadium	mg/kg	19.1	1
CR-WBC2	Zinc	mg/kg	53.4	1
CR-WBC3	Aluminum	mg/kg	9500	1
CR-WBC3	Antimony	mg/kg	0.064	1
CR-WBC3	Arsenic	mg/kg	1.68	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WBC3	Barium	mg/kg	100	1
CR-WBC3	Beryllium	mg/kg	0.35	1
CR-WBC3	Cadmium	mg/kg	0.166	1
CR-WBC3	Calcium	mg/kg	3470	1
CR-WBC3	Chromium	mg/kg	19.6	1
CR-WBC3	Cobalt	mg/kg	6.26	1
CR-WBC3	Copper	mg/kg	15.2	1
CR-WBC3	Iron	mg/kg	17100	1
CR-WBC3	Lead	mg/kg	7.14	1
CR-WBC3	Magnesium	mg/kg	5000	1
CR-WBC3	Manganese	mg/kg	337	1
CR-WBC3	Mercury	mg/kg	0.003	1
CR-WBC3	Nickel	mg/kg	16.9	1
CR-WBC3	Potassium	mg/kg	2480	1
CR-WBC3	Selenium	mg/kg	0.2	1
CR-WBC3	Silver	mg/kg	0.103	1
CR-WBC3	Sodium	mg/kg	103	1
CR-WBC3	Thallium	mg/kg	0.131	1
CR-WBC3	Vanadium	mg/kg	24.1	1
CR-WBC3	Zinc	mg/kg	51.9	1
CR-WBD1	Aluminum	mg/kg	5740	1
CR-WBD1	Antimony	mg/kg	0.096	1
CR-WBD1	Arsenic	mg/kg	1.4	1
CR-WBD1	Barium	mg/kg	59.7	1
CR-WBD1	Beryllium	mg/kg	0.21	1
CR-WBD1	Cadmium	mg/kg	0.168	1
CR-WBD1	Calcium	mg/kg	2350	1
CR-WBD1	Chromium	mg/kg	10.9	1
CR-WBD1	Cobalt	mg/kg	4.24	1
CR-WBD1	Copper	mg/kg	9.2	1
CR-WBD1	Iron	mg/kg	11800	1
CR-WBD1	Lead	mg/kg	5.9	1
CR-WBD1	Magnesium	mg/kg	3080	1
CR-WBD1	Manganese	mg/kg	199	1
CR-WBD1	Mercury	mg/kg	0.003	1
CR-WBD1	Nickel	mg/kg	10.4	1
CR-WBD1	Potassium	mg/kg	1320	1
CR-WBD1	Selenium	mg/kg	0.2	0
CR-WBD1	Silver	mg/kg	0.049	0
CR-WBD1	Sodium	mg/kg	62	1
CR-WBD1	Thallium	mg/kg	0.118	1
CR-WBD1	Vanadium	mg/kg	14.1	1
CR-WBD1	Zinc	mg/kg	43.1	1
CR-WBD2	Aluminum	mg/kg	6490	1
CR-WBD2	Antimony	mg/kg	0.069	1
CR-WBD2	Arsenic	mg/kg	1.34	1
CR-WBD2	Barium	mg/kg	72.5	1
CR-WBD2	Beryllium	mg/kg	0.24	1
CR-WBD2	Cadmium	mg/kg	0.178	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WBD2	Calcium	mg/kg	2660	1
CR-WBD2	Chromium	mg/kg	14.1	1
CR-WBD2	Cobalt	mg/kg	4.59	1
CR-WBD2	Copper	mg/kg	10.8	1
CR-WBD2	Iron	mg/kg	13300	1
CR-WBD2	Lead	mg/kg	5.48	1
CR-WBD2	Magnesium	mg/kg	3540	1
CR-WBD2	Manganese	mg/kg	232	1
CR-WBD2	Mercury	mg/kg	0.002	1
CR-WBD2	Nickel	mg/kg	11.7	1
CR-WBD2	Potassium	mg/kg	1640	1
CR-WBD2	Selenium	mg/kg	0.2	0
CR-WBD2	Silver	mg/kg	0.066	1
CR-WBD2	Sodium	mg/kg	72	1
CR-WBD2	Thallium	mg/kg	0.112	1
CR-WBD2	Vanadium	mg/kg	17.3	1
CR-WBD2	Zinc	mg/kg	41.2	1
CR-WBD3	Aluminum	mg/kg	8050	1
CR-WBD3	Antimony	mg/kg	0.063	1
CR-WBD3	Arsenic	mg/kg	1.46	1
CR-WBD3	Barium	mg/kg	88.2	1
CR-WBD3	Beryllium	mg/kg	0.27	1
CR-WBD3	Cadmium	mg/kg	0.152	1
CR-WBD3	Calcium	mg/kg	3070	1
CR-WBD3	Chromium	mg/kg	14.7	1
CR-WBD3	Cobalt	mg/kg	5.6	1
CR-WBD3	Copper	mg/kg	13.5	1
CR-WBD3	Iron	mg/kg	16200	1
CR-WBD3	Lead	mg/kg	5.46	1
CR-WBD3	Magnesium	mg/kg	4290	1
CR-WBD3	Manganese	mg/kg	273	1
CR-WBD3	Mercury	mg/kg	0.003	1
CR-WBD3	Nickel	mg/kg	15.1	1
CR-WBD3	Potassium	mg/kg	2000	1
CR-WBD3	Selenium	mg/kg	0.2	1
CR-WBD3	Silver	mg/kg	0.075	1
CR-WBD3	Sodium	mg/kg	84	1
CR-WBD3	Thallium	mg/kg	0.11	1
CR-WBD3	Vanadium	mg/kg	18.2	1
CR-WBD3	Zinc	mg/kg	46.5	1
CR-WCA1	Aluminum	mg/kg	8000	1
CR-WCA1	Antimony	mg/kg	0.261	1
CR-WCA1	Arsenic	mg/kg	6.59	1
CR-WCA1	Barium	mg/kg	93	1
CR-WCA1	Beryllium	mg/kg	0.31	1
CR-WCA1	Cadmium	mg/kg	0.198	1
CR-WCA1	Calcium	mg/kg	2420	1
CR-WCA1	Chromium	mg/kg	15.8	1
CR-WCA1	Cobalt	mg/kg	10.1	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-WCA1	Copper	mg/kg	13	1
CR-WCA1	Iron	mg/kg	16300	1
CR-WCA1	Lead	mg/kg	11.1	1
CR-WCA1	Magnesium	mg/kg	4610	1
CR-WCA1	Manganese	mg/kg	435	1
CR-WCA1	Mercury	mg/kg	0.003	1
CR-WCA1	Nickel	mg/kg	15.9	1
CR-WCA1	Potassium	mg/kg	1740	1
CR-WCA1	Selenium	mg/kg	0.2	0
CR-WCA1	Silver	mg/kg	0.058	1
CR-WCA1	Sodium	mg/kg	63	1
CR-WCA1	Thallium	mg/kg	0.298	1
CR-WCA1	Vanadium	mg/kg	19.9	1
CR-WCA1	Zinc	mg/kg	55.8	1
CR-WCB1	Aluminum	mg/kg	11700	1
CR-WCB1	Antimony	mg/kg	0.277	1
CR-WCB1	Arsenic	mg/kg	5.61	1
CR-WCB1	Barium	mg/kg	131	1
CR-WCB1	Beryllium	mg/kg	0.44	1
CR-WCB1	Cadmium	mg/kg	0.401	1
CR-WCB1	Calcium	mg/kg	2430	1
CR-WCB1	Chromium	mg/kg	16.4	1
CR-WCB1	Cobalt	mg/kg	6.98	1
CR-WCB1	Copper	mg/kg	15.1	1
CR-WCB1	Iron	mg/kg	19200	1
CR-WCB1	Lead	mg/kg	11.1	1
CR-WCB1	Magnesium	mg/kg	4450	1
CR-WCB1	Manganese	mg/kg	286	1
CR-WCB1	Mercury	mg/kg	0.01	1
CR-WCB1	Nickel	mg/kg	14.4	1
CR-WCB1	Potassium	mg/kg	2420	1
CR-WCB1	Selenium	mg/kg	0.2	0
CR-WCB1	Silver	mg/kg	0.054	1
CR-WCB1	Sodium	mg/kg	86	1
CR-WCB1	Thallium	mg/kg	0.191	1
CR-WCB1	Vanadium	mg/kg	20.3	1
CR-WCB1	Zinc	mg/kg	84.4	1
CR-WCB2	Aluminum	mg/kg	12900	1
CR-WCB2	Antimony	mg/kg	0.273	1
CR-WCB2	Arsenic	mg/kg	6.17	1
CR-WCB2	Barium	mg/kg	135	1
CR-WCB2	Beryllium	mg/kg	0.46	1
CR-WCB2	Cadmium	mg/kg	0.134	1
CR-WCB2	Calcium	mg/kg	2080	1
CR-WCB2	Chromium	mg/kg	15.7	1
CR-WCB2	Cobalt	mg/kg	6.61	1
CR-WCB2	Copper	mg/kg	16.2	1
CR-WCB2	Iron	mg/kg	18700	1
CR-WCB2	Lead	mg/kg	10.1	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WCB2	Magnesium	mg/kg	4400	1
CR-WCB2	Manganese	mg/kg	317	1
CR-WCB2	Mercury	mg/kg	0.006	1
CR-WCB2	Nickel	mg/kg	13.7	1
CR-WCB2	Potassium	mg/kg	2490	1
CR-WCB2	Selenium	mg/kg	0.2	0
CR-WCB2	Silver	mg/kg	0.071	1
CR-WCB2	Sodium	mg/kg	100	1
CR-WCB2	Thallium	mg/kg	0.138	1
CR-WCB2	Vanadium	mg/kg	20.4	1
CR-WCB2	Zinc	mg/kg	55.4	1
CR-WCB3-1	Aluminum	mg/kg	11150	1
CR-WCB3-1	Antimony	mg/kg	0.31	1
CR-WCB3-1	Arsenic	mg/kg	9.485	1
CR-WCB3-1	Barium	mg/kg	119.5	1
CR-WCB3-1	Beryllium	mg/kg	0.4	1
CR-WCB3-1	Cadmium	mg/kg	0.118	1
CR-WCB3-1	Calcium	mg/kg	2345	1
CR-WCB3-1	Chromium	mg/kg	18	1
CR-WCB3-1	Cobalt	mg/kg	8.05	1
CR-WCB3-1	Copper	mg/kg	18.3	1
CR-WCB3-1	Iron	mg/kg	20700	1
CR-WCB3-1	Lead	mg/kg	10.55	1
CR-WCB3-1	Magnesium	mg/kg	5260	1
CR-WCB3-1	Manganese	mg/kg	390	1
CR-WCB3-1	Mercury	mg/kg	0.01	1
CR-WCB3-1	Nickel	mg/kg	17.3	1
CR-WCB3-1	Potassium	mg/kg	2465	1
CR-WCB3-1	Selenium	mg/kg	0.2	0
CR-WCB3-1	Silver	mg/kg	0.072	1
CR-WCB3-1	Sodium	mg/kg	80.5	1
CR-WCB3-1	Thallium	mg/kg	0.1275	1
CR-WCB3-1	Vanadium	mg/kg	22.4	1
CR-WCB3-1	Zinc	mg/kg	54.75	1
CR-WCC1	Aluminum	mg/kg	7470	1
CR-WCC1	Antimony	mg/kg	0.226	1
CR-WCC1	Arsenic	mg/kg	7.28	1
CR-WCC1	Barium	mg/kg	78.9	1
CR-WCC1	Beryllium	mg/kg	0.25	1
CR-WCC1	Cadmium	mg/kg	0.154	1
CR-WCC1	Calcium	mg/kg	6140	1
CR-WCC1	Chromium	mg/kg	16.2	1
CR-WCC1	Cobalt	mg/kg	7.63	1
CR-WCC1	Copper	mg/kg	13.2	1
CR-WCC1	Iron	mg/kg	17200	1
CR-WCC1	Lead	mg/kg	10	1
CR-WCC1	Magnesium	mg/kg	4630	1
CR-WCC1	Manganese	mg/kg	300	1
CR-WCC1	Mercury	mg/kg	0.008	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-WCC1	Nickel	mg/kg	16	1
CR-WCC1	Potassium	mg/kg	1450	1
CR-WCC1	Selenium	mg/kg	0.2	0
CR-WCC1	Silver	mg/kg	0.061	1
CR-WCC1	Sodium	mg/kg	71	1
CR-WCC1	Thallium	mg/kg	0.154	1
CR-WCC1	Vanadium	mg/kg	18.8	1
CR-WCC1	Zinc	mg/kg	49.9	1
CR-WCC2	Aluminum	mg/kg	8510	1
CR-WCC2	Antimony	mg/kg	0.247	1
CR-WCC2	Arsenic	mg/kg	7.08	1
CR-WCC2	Barium	mg/kg	86.7	1
CR-WCC2	Beryllium	mg/kg	0.31	1
CR-WCC2	Cadmium	mg/kg	0.225	1
CR-WCC2	Calcium	mg/kg	8690	1
CR-WCC2	Chromium	mg/kg	19.7	1
CR-WCC2	Cobalt	mg/kg	7.63	1
CR-WCC2	Copper	mg/kg	17.2	1
CR-WCC2	Iron	mg/kg	19000	1
CR-WCC2	Lead	mg/kg	10.7	1
CR-WCC2	Magnesium	mg/kg	5330	1
CR-WCC2	Manganese	mg/kg	282	1
CR-WCC2	Mercury	mg/kg	0.01	1
CR-WCC2	Nickel	mg/kg	18.8	1
CR-WCC2	Potassium	mg/kg	1420	1
CR-WCC2	Selenium	mg/kg	0.2	0
CR-WCC2	Silver	mg/kg	0.103	1
CR-WCC2	Sodium	mg/kg	88	1
CR-WCC2	Thallium	mg/kg	0.162	1
CR-WCC2	Vanadium	mg/kg	21.2	1
CR-WCC2	Zinc	mg/kg	56.3	1
CR-WCC3	Aluminum	mg/kg	9210	1
CR-WCC3	Antimony	mg/kg	0.268	1
CR-WCC3	Arsenic	mg/kg	6.76	1
CR-WCC3	Barium	mg/kg	98.6	1
CR-WCC3	Beryllium	mg/kg	0.35	1
CR-WCC3	Cadmium	mg/kg	0.475	1
CR-WCC3	Calcium	mg/kg	4550	1
CR-WCC3	Chromium	mg/kg	19	1
CR-WCC3	Cobalt	mg/kg	7.58	1
CR-WCC3	Copper	mg/kg	19	1
CR-WCC3	Iron	mg/kg	19100	1
CR-WCC3	Lead	mg/kg	12.7	1
CR-WCC3	Magnesium	mg/kg	4910	1
CR-WCC3	Manganese	mg/kg	249	1
CR-WCC3	Mercury	mg/kg	0.017	1
CR-WCC3	Nickel	mg/kg	17.8	1
CR-WCC3	Potassium	mg/kg	1720	1
CR-WCC3	Selenium	mg/kg	0.2	0

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WCC3	Silver	mg/kg	0.113	1
CR-WCC3	Sodium	mg/kg	83	1
CR-WCC3	Thallium	mg/kg	0.488	1
CR-WCC3	Vanadium	mg/kg	21.5	1
CR-WCC3	Zinc	mg/kg	73.6	1
CR-WCD1	Aluminum	mg/kg	8390	1
CR-WCD1	Antimony	mg/kg	0.269	1
CR-WCD1	Arsenic	mg/kg	5.59	1
CR-WCD1	Barium	mg/kg	68.6	1
CR-WCD1	Beryllium	mg/kg	0.27	1
CR-WCD1	Cadmium	mg/kg	0.113	1
CR-WCD1	Calcium	mg/kg	5080	1
CR-WCD1	Chromium	mg/kg	18.4	1
CR-WCD1	Cobalt	mg/kg	6.94	1
CR-WCD1	Copper	mg/kg	15.4	1
CR-WCD1	Iron	mg/kg	17800	1
CR-WCD1	Lead	mg/kg	7.71	1
CR-WCD1	Magnesium	mg/kg	4150	1
CR-WCD1	Manganese	mg/kg	248	1
CR-WCD1	Mercury	mg/kg	0.007	1
CR-WCD1	Nickel	mg/kg	18.4	1
CR-WCD1	Potassium	mg/kg	1190	1
CR-WCD1	Selenium	mg/kg	0.2	0
CR-WCD1	Silver	mg/kg	0.059	1
CR-WCD1	Sodium	mg/kg	72	1
CR-WCD1	Thallium	mg/kg	0.064	1
CR-WCD1	Vanadium	mg/kg	18.7	1
CR-WCD1	Zinc	mg/kg	41	1
CR-WCD2	Aluminum	mg/kg	10800	1
CR-WCD2	Antimony	mg/kg	0.277	1
CR-WCD2	Arsenic	mg/kg	6.18	1
CR-WCD2	Barium	mg/kg	97.8	1
CR-WCD2	Beryllium	mg/kg	0.34	1
CR-WCD2	Cadmium	mg/kg	0.104	1
CR-WCD2	Calcium	mg/kg	2780	1
CR-WCD2	Chromium	mg/kg	19.8	1
CR-WCD2	Cobalt	mg/kg	8.3	1
CR-WCD2	Copper	mg/kg	18.7	1
CR-WCD2	Iron	mg/kg	20900	1
CR-WCD2	Lead	mg/kg	8.92	1
CR-WCD2	Magnesium	mg/kg	4370	1
CR-WCD2	Manganese	mg/kg	343	1
CR-WCD2	Mercury	mg/kg	0.007	1
CR-WCD2	Nickel	mg/kg	21.5	1
CR-WCD2	Potassium	mg/kg	1620	1
CR-WCD2	Selenium	mg/kg	0.2	0
CR-WCD2	Silver	mg/kg	0.057	1
CR-WCD2	Sodium	mg/kg	87	1
CR-WCD2	Thallium	mg/kg	0.081	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WCD2	Vanadium	mg/kg	20.3	1
CR-WCD2	Zinc	mg/kg	46.7	1
CR-WCD3	Aluminum	mg/kg	9990	1
CR-WCD3	Antimony	mg/kg	0.298	1
CR-WCD3	Arsenic	mg/kg	6.56	1
CR-WCD3	Barium	mg/kg	90.3	1
CR-WCD3	Beryllium	mg/kg	0.32	1
CR-WCD3	Cadmium	mg/kg	0.106	1
CR-WCD3	Calcium	mg/kg	2800	1
CR-WCD3	Chromium	mg/kg	20.6	1
CR-WCD3	Cobalt	mg/kg	7.97	1
CR-WCD3	Copper	mg/kg	19.1	1
CR-WCD3	Iron	mg/kg	20300	1
CR-WCD3	Lead	mg/kg	9.48	1
CR-WCD3	Magnesium	mg/kg	4320	1
CR-WCD3	Manganese	mg/kg	319	1
CR-WCD3	Mercury	mg/kg	0.01	1
CR-WCD3	Nickel	mg/kg	21.3	1
CR-WCD3	Potassium	mg/kg	1360	1
CR-WCD3	Selenium	mg/kg	0.2	0
CR-WCD3	Silver	mg/kg	0.098	1
CR-WCD3	Sodium	mg/kg	89	1
CR-WCD3	Thallium	mg/kg	0.081	1
CR-WCD3	Vanadium	mg/kg	21.3	1
CR-WCD3	Zinc	mg/kg	45.5	1
CR-WCE1	Aluminum	mg/kg	7720	1
CR-WCE1	Antimony	mg/kg	0.24	1
CR-WCE1	Arsenic	mg/kg	6.04	1
CR-WCE1	Barium	mg/kg	77.2	1
CR-WCE1	Beryllium	mg/kg	0.27	1
CR-WCE1	Cadmium	mg/kg	0.142	1
CR-WCE1	Calcium	mg/kg	8520	1
CR-WCE1	Chromium	mg/kg	16.5	1
CR-WCE1	Cobalt	mg/kg	7.49	1
CR-WCE1	Copper	mg/kg	13.7	1
CR-WCE1	Iron	mg/kg	17300	1
CR-WCE1	Lead	mg/kg	7.98	1
CR-WCE1	Magnesium	mg/kg	4620	1
CR-WCE1	Manganese	mg/kg	294	1
CR-WCE1	Mercury	mg/kg	0.007	1
CR-WCE1	Nickel	mg/kg	17.5	1
CR-WCE1	Potassium	mg/kg	1140	1
CR-WCE1	Selenium	mg/kg	0.2	0
CR-WCE1	Silver	mg/kg	0.063	1
CR-WCE1	Sodium	mg/kg	80	1
CR-WCE1	Thallium	mg/kg	0.109	1
CR-WCE1	Vanadium	mg/kg	18	1
CR-WCE1	Zinc	mg/kg	44.7	1
CR-WCE2	Aluminum	mg/kg	9290	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WCE2	Antimony	mg/kg	0.258	1
CR-WCE2	Arsenic	mg/kg	5.38	1
CR-WCE2	Barium	mg/kg	99.9	1
CR-WCE2	Beryllium	mg/kg	0.32	1
CR-WCE2	Cadmium	mg/kg	0.169	1
CR-WCE2	Calcium	mg/kg	5590	1
CR-WCE2	Chromium	mg/kg	18.4	1
CR-WCE2	Cobalt	mg/kg	7.45	1
CR-WCE2	Copper	mg/kg	16	1
CR-WCE2	Iron	mg/kg	18900	1
CR-WCE2	Lead	mg/kg	9.21	1
CR-WCE2	Magnesium	mg/kg	4390	1
CR-WCE2	Manganese	mg/kg	304	1
CR-WCE2	Mercury	mg/kg	0.009	1
CR-WCE2	Nickel	mg/kg	18.1	1
CR-WCE2	Potassium	mg/kg	1720	1
CR-WCE2	Selenium	mg/kg	0.2	0
CR-WCE2	Silver	mg/kg	0.065	1
CR-WCE2	Sodium	mg/kg	76	1
CR-WCE2	Thallium	mg/kg	0.115	1
CR-WCE2	Vanadium	mg/kg	19.8	1
CR-WCE2	Zinc	mg/kg	51	1
CR-WCE3	Aluminum	mg/kg	12600	1
CR-WCE3	Antimony	mg/kg	0.263	1
CR-WCE3	Arsenic	mg/kg	4.96	1
CR-WCE3	Barium	mg/kg	134	1
CR-WCE3	Beryllium	mg/kg	0.46	1
CR-WCE3	Cadmium	mg/kg	0.137	1
CR-WCE3	Calcium	mg/kg	2930	1
CR-WCE3	Chromium	mg/kg	20.6	1
CR-WCE3	Cobalt	mg/kg	8.32	1
CR-WCE3	Copper	mg/kg	18.4	1
CR-WCE3	Iron	mg/kg	21000	1
CR-WCE3	Lead	mg/kg	9.95	1
CR-WCE3	Magnesium	mg/kg	4530	1
CR-WCE3	Manganese	mg/kg	471	1
CR-WCE3	Mercury	mg/kg	0.007	1
CR-WCE3	Nickel	mg/kg	19.7	1
CR-WCE3	Potassium	mg/kg	2440	1
CR-WCE3	Selenium	mg/kg	0.2	0
CR-WCE3	Silver	mg/kg	0.07	1
CR-WCE3	Sodium	mg/kg	93	1
CR-WCE3	Thallium	mg/kg	0.122	1
CR-WCE3	Vanadium	mg/kg	22.4	1
CR-WCE3	Zinc	mg/kg	51.7	1
CR-WSA1	Aluminum	mg/kg	8790	1
CR-WSA1	Antimony	mg/kg	0.227	1
CR-WSA1	Arsenic	mg/kg	3.64	1
CR-WSA1	Barium	mg/kg	49.2	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-WSA1	Beryllium	mg/kg	0.34	1
CR-WSA1	Cadmium	mg/kg	0.132	1
CR-WSA1	Calcium	mg/kg	2240	1
CR-WSA1	Chromium	mg/kg	7.96	1
CR-WSA1	Cobalt	mg/kg	4.22	1
CR-WSA1	Copper	mg/kg	6.2	1
CR-WSA1	Iron	mg/kg	15900	1
CR-WSA1	Lead	mg/kg	6.08	1
CR-WSA1	Magnesium	mg/kg	6240	1
CR-WSA1	Manganese	mg/kg	238	1
CR-WSA1	Mercury	mg/kg	0.003	1
CR-WSA1	Nickel	mg/kg	8.91	1
CR-WSA1	Potassium	mg/kg	1440	1
CR-WSA1	Selenium	mg/kg	0.2	0
CR-WSA1	Silver	mg/kg	0.043	1
CR-WSA1	Sodium	mg/kg	168	1
CR-WSA1	Thallium	mg/kg	0.143	1
CR-WSA1	Vanadium	mg/kg	10.5	1
CR-WSA1	Zinc	mg/kg	51	1
CR-WSA2	Aluminum	mg/kg	7190	1
CR-WSA2	Antimony	mg/kg	0.155	1
CR-WSA2	Arsenic	mg/kg	2.84	1
CR-WSA2	Barium	mg/kg	57.3	1
CR-WSA2	Beryllium	mg/kg	0.32	1
CR-WSA2	Cadmium	mg/kg	0.074	0
CR-WSA2	Calcium	mg/kg	2120	1
CR-WSA2	Chromium	mg/kg	10.6	1
CR-WSA2	Cobalt	mg/kg	4.45	1
CR-WSA2	Copper	mg/kg	7.6	1
CR-WSA2	Iron	mg/kg	13200	1
CR-WSA2	Lead	mg/kg	4.8	1
CR-WSA2	Magnesium	mg/kg	3690	1
CR-WSA2	Manganese	mg/kg	234	1
CR-WSA2	Mercury	mg/kg	0.004	1
CR-WSA2	Nickel	mg/kg	9.18	1
CR-WSA2	Potassium	mg/kg	1400	1
CR-WSA2	Selenium	mg/kg	0.2	0
CR-WSA2	Silver	mg/kg	0.037	1
CR-WSA2	Sodium	mg/kg	105	1
CR-WSA2	Thallium	mg/kg	0.086	0
CR-WSA2	Vanadium	mg/kg	12.7	1
CR-WSA2	Zinc	mg/kg	30.2	1
CR-WSA3	Aluminum	mg/kg	6910	1
CR-WSA3	Antimony	mg/kg	0.143	1
CR-WSA3	Arsenic	mg/kg	2.93	1
CR-WSA3	Barium	mg/kg	58.6	1
CR-WSA3	Beryllium	mg/kg	0.3	1
CR-WSA3	Cadmium	mg/kg	0.058	0
CR-WSA3	Calcium	mg/kg	2480	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WSA3	Chromium	mg/kg	8.91	1
CR-WSA3	Cobalt	mg/kg	4.67	1
CR-WSA3	Copper	mg/kg	8.1	1
CR-WSA3	Iron	mg/kg	12800	1
CR-WSA3	Lead	mg/kg	4.56	1
CR-WSA3	Magnesium	mg/kg	3680	1
CR-WSA3	Manganese	mg/kg	224	1
CR-WSA3	Mercury	mg/kg	0.003	1
CR-WSA3	Nickel	mg/kg	10.1	1
CR-WSA3	Potassium	mg/kg	1250	1
CR-WSA3	Selenium	mg/kg	0.2	0
CR-WSA3	Silver	mg/kg	0.038	1
CR-WSA3	Sodium	mg/kg	176	1
CR-WSA3	Thallium	mg/kg	0.076	0
CR-WSA3	Vanadium	mg/kg	11.6	1
CR-WSA3	Zinc	mg/kg	28.2	1
CR-WSB1	Aluminum	mg/kg	9420	1
CR-WSB1	Antimony	mg/kg	0.152	1
CR-WSB1	Arsenic	mg/kg	3.5	1
CR-WSB1	Barium	mg/kg	62.7	1
CR-WSB1	Beryllium	mg/kg	0.31	1
CR-WSB1	Cadmium	mg/kg	0.098	1
CR-WSB1	Calcium	mg/kg	3500	1
CR-WSB1	Chromium	mg/kg	7.11	1
CR-WSB1	Cobalt	mg/kg	4.06	1
CR-WSB1	Copper	mg/kg	6.1	1
CR-WSB1	Iron	mg/kg	15400	1
CR-WSB1	Lead	mg/kg	4.92	1
CR-WSB1	Magnesium	mg/kg	5760	1
CR-WSB1	Manganese	mg/kg	229	1
CR-WSB1	Mercury	mg/kg	0.002	1
CR-WSB1	Nickel	mg/kg	8.32	1
CR-WSB1	Potassium	mg/kg	1590	1
CR-WSB1	Selenium	mg/kg	0.2	0
CR-WSB1	Silver	mg/kg	0.028	1
CR-WSB1	Sodium	mg/kg	147	1
CR-WSB1	Thallium	mg/kg	0.092	1
CR-WSB1	Vanadium	mg/kg	9.5	1
CR-WSB1	Zinc	mg/kg	38.9	1
CR-WSB2	Aluminum	mg/kg	8310	1
CR-WSB2	Antimony	mg/kg	0.687	1
CR-WSB2	Arsenic	mg/kg	2.58	1
CR-WSB2	Barium	mg/kg	65.9	1
CR-WSB2	Beryllium	mg/kg	0.33	1
CR-WSB2	Cadmium	mg/kg	0.078	0
CR-WSB2	Calcium	mg/kg	2160	1
CR-WSB2	Chromium	mg/kg	7.98	1
CR-WSB2	Cobalt	mg/kg	4.14	1
CR-WSB2	Copper	mg/kg	6.9	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WSB2	Iron	mg/kg	13800	1
CR-WSB2	Lead	mg/kg	4.64	1
CR-WSB2	Magnesium	mg/kg	4320	1
CR-WSB2	Manganese	mg/kg	212	1
CR-WSB2	Mercury	mg/kg	0.003	1
CR-WSB2	Nickel	mg/kg	7.62	1
CR-WSB2	Potassium	mg/kg	1470	1
CR-WSB2	Selenium	mg/kg	0.2	0
CR-WSB2	Silver	mg/kg	0.026	1
CR-WSB2	Sodium	mg/kg	160	1
CR-WSB2	Thallium	mg/kg	0.078	0
CR-WSB2	Vanadium	mg/kg	12.1	1
CR-WSB2	Zinc	mg/kg	30.8	1
CR-WSB3	Aluminum	mg/kg	7850	1
CR-WSB3	Antimony	mg/kg	0.144	1
CR-WSB3	Arsenic	mg/kg	2.59	1
CR-WSB3	Barium	mg/kg	58.3	1
CR-WSB3	Beryllium	mg/kg	0.32	1
CR-WSB3	Cadmium	mg/kg	0.067	0
CR-WSB3	Calcium	mg/kg	2160	1
CR-WSB3	Chromium	mg/kg	8.61	1
CR-WSB3	Cobalt	mg/kg	4.57	1
CR-WSB3	Copper	mg/kg	7.3	1
CR-WSB3	Iron	mg/kg	14000	1
CR-WSB3	Lead	mg/kg	4.75	1
CR-WSB3	Magnesium	mg/kg	4800	1
CR-WSB3	Manganese	mg/kg	255	1
CR-WSB3	Mercury	mg/kg	0.003	1
CR-WSB3	Nickel	mg/kg	8.95	1
CR-WSB3	Potassium	mg/kg	1490	1
CR-WSB3	Selenium	mg/kg	0.2	0
CR-WSB3	Silver	mg/kg	0.032	1
CR-WSB3	Sodium	mg/kg	162	1
CR-WSB3	Thallium	mg/kg	0.081	0
CR-WSB3	Vanadium	mg/kg	12	1
CR-WSB3	Zinc	mg/kg	30.8	1
CR-WSC1	Aluminum	mg/kg	8430	1
CR-WSC1	Antimony	mg/kg	0.209	1
CR-WSC1	Arsenic	mg/kg	3.92	1
CR-WSC1	Barium	mg/kg	73.7	1
CR-WSC1	Beryllium	mg/kg	0.34	1
CR-WSC1	Cadmium	mg/kg	0.373	1
CR-WSC1	Calcium	mg/kg	1870	1
CR-WSC1	Chromium	mg/kg	7.57	1
CR-WSC1	Cobalt	mg/kg	4.54	1
CR-WSC1	Copper	mg/kg	5.4	1
CR-WSC1	Iron	mg/kg	16100	1
CR-WSC1	Lead	mg/kg	10.2	1
CR-WSC1	Magnesium	mg/kg	5100	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-WSC1	Manganese	mg/kg	226	1
CR-WSC1	Mercury	mg/kg	0.01	1
CR-WSC1	Nickel	mg/kg	7.71	1
CR-WSC1	Potassium	mg/kg	1500	1
CR-WSC1	Selenium	mg/kg	0.2	0
CR-WSC1	Silver	mg/kg	0.021	1
CR-WSC1	Sodium	mg/kg	143	1
CR-WSC1	Thallium	mg/kg	0.181	1
CR-WSC1	Vanadium	mg/kg	11.2	1
CR-WSC1	Zinc	mg/kg	85.2	1
CR-WSC2	Aluminum	mg/kg	8730	1
CR-WSC2	Antimony	mg/kg	0.193	1
CR-WSC2	Arsenic	mg/kg	3.31	1
CR-WSC2	Barium	mg/kg	60.8	1
CR-WSC2	Beryllium	mg/kg	0.33	1
CR-WSC2	Cadmium	mg/kg	0.466	1
CR-WSC2	Calcium	mg/kg	1750	1
CR-WSC2	Chromium	mg/kg	8.31	1
CR-WSC2	Cobalt	mg/kg	4.13	1
CR-WSC2	Copper	mg/kg	6.3	1
CR-WSC2	Iron	mg/kg	15300	1
CR-WSC2	Lead	mg/kg	15	1
CR-WSC2	Magnesium	mg/kg	4790	1
CR-WSC2	Manganese	mg/kg	191	1
CR-WSC2	Mercury	mg/kg	0.012	1
CR-WSC2	Nickel	mg/kg	7.37	1
CR-WSC2	Potassium	mg/kg	1700	1
CR-WSC2	Selenium	mg/kg	0.2	0
CR-WSC2	Silver	mg/kg	0.031	1
CR-WSC2	Sodium	mg/kg	93	1
CR-WSC2	Thallium	mg/kg	0.171	1
CR-WSC2	Vanadium	mg/kg	11.5	1
CR-WSC2	Zinc	mg/kg	71	1
CR-WSC3	Aluminum	mg/kg	9710	1
CR-WSC3	Antimony	mg/kg	0.132	1
CR-WSC3	Arsenic	mg/kg	2.73	1
CR-WSC3	Barium	mg/kg	66	1
CR-WSC3	Beryllium	mg/kg	0.33	1
CR-WSC3	Cadmium	mg/kg	0.07	0
CR-WSC3	Calcium	mg/kg	2280	1
CR-WSC3	Chromium	mg/kg	7.98	1
CR-WSC3	Cobalt	mg/kg	4.17	1
CR-WSC3	Copper	mg/kg	7.3	1
CR-WSC3	Iron	mg/kg	14300	1
CR-WSC3	Lead	mg/kg	5.2	1
CR-WSC3	Magnesium	mg/kg	5110	1
CR-WSC3	Manganese	mg/kg	211	1
CR-WSC3	Mercury	mg/kg	0.004	1
CR-WSC3	Nickel	mg/kg	8.18	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WSC3	Potassium	mg/kg	1770	1
CR-WSC3	Selenium	mg/kg	0.2	0
CR-WSC3	Silver	mg/kg	0.043	1
CR-WSC3	Sodium	mg/kg	193	1
CR-WSC3	Thallium	mg/kg	0.097	1
CR-WSC3	Vanadium	mg/kg	12.1	1
CR-WSC3	Zinc	mg/kg	30.7	1
CR-WSD1	Aluminum	mg/kg	8290	1
CR-WSD1	Antimony	mg/kg	0.163	1
CR-WSD1	Arsenic	mg/kg	4.59	1
CR-WSD1	Barium	mg/kg	48.1	1
CR-WSD1	Beryllium	mg/kg	0.32	1
CR-WSD1	Cadmium	mg/kg	0.208	1
CR-WSD1	Calcium	mg/kg	1890	1
CR-WSD1	Chromium	mg/kg	6.93	1
CR-WSD1	Cobalt	mg/kg	4.02	1
CR-WSD1	Copper	mg/kg	7.1	1
CR-WSD1	Iron	mg/kg	15200	1
CR-WSD1	Lead	mg/kg	7.15	1
CR-WSD1	Magnesium	mg/kg	5860	1
CR-WSD1	Manganese	mg/kg	211	1
CR-WSD1	Mercury	mg/kg	0.002	1
CR-WSD1	Nickel	mg/kg	8.25	1
CR-WSD1	Potassium	mg/kg	1330	1
CR-WSD1	Selenium	mg/kg	0.2	0
CR-WSD1	Silver	mg/kg	0.028	1
CR-WSD1	Sodium	mg/kg	109	1
CR-WSD1	Thallium	mg/kg	0.171	1
CR-WSD1	Vanadium	mg/kg	9.51	1
CR-WSD1	Zinc	mg/kg	58.6	1
CR-WSD2	Aluminum	mg/kg	8060	1
CR-WSD2	Antimony	mg/kg	0.185	1
CR-WSD2	Arsenic	mg/kg	4.41	1
CR-WSD2	Barium	mg/kg	49.2	1
CR-WSD2	Beryllium	mg/kg	0.31	1
CR-WSD2	Cadmium	mg/kg	0.312	1
CR-WSD2	Calcium	mg/kg	1870	1
CR-WSD2	Chromium	mg/kg	7.62	1
CR-WSD2	Cobalt	mg/kg	4.06	1
CR-WSD2	Copper	mg/kg	5.3	1
CR-WSD2	Iron	mg/kg	15400	1
CR-WSD2	Lead	mg/kg	7.71	1
CR-WSD2	Magnesium	mg/kg	5230	1
CR-WSD2	Manganese	mg/kg	209	1
CR-WSD2	Mercury	mg/kg	0.004	1
CR-WSD2	Nickel	mg/kg	7.83	1
CR-WSD2	Potassium	mg/kg	1380	1
CR-WSD2	Selenium	mg/kg	0.2	0
CR-WSD2	Silver	mg/kg	0.038	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
CR-WSD2	Sodium	mg/kg	109	1
CR-WSD2	Thallium	mg/kg	0.219	1
CR-WSD2	Vanadium	mg/kg	10.7	1
CR-WSD2	Zinc	mg/kg	68.1	1
CR-WSD3	Aluminum	mg/kg	8500	1
CR-WSD3	Antimony	mg/kg	0.173	1
CR-WSD3	Arsenic	mg/kg	3.82	1
CR-WSD3	Barium	mg/kg	54.5	1
CR-WSD3	Beryllium	mg/kg	0.31	1
CR-WSD3	Cadmium	mg/kg	0.451	1
CR-WSD3	Calcium	mg/kg	1540	1
CR-WSD3	Chromium	mg/kg	8.99	1
CR-WSD3	Cobalt	mg/kg	4.09	1
CR-WSD3	Copper	mg/kg	6.7	1
CR-WSD3	Iron	mg/kg	16000	1
CR-WSD3	Lead	mg/kg	12.6	1
CR-WSD3	Magnesium	mg/kg	5330	1
CR-WSD3	Manganese	mg/kg	218	1
CR-WSD3	Mercury	mg/kg	0.008	1
CR-WSD3	Nickel	mg/kg	8.03	1
CR-WSD3	Potassium	mg/kg	1630	1
CR-WSD3	Selenium	mg/kg	0.2	0
CR-WSD3	Silver	mg/kg	0.03	1
CR-WSD3	Sodium	mg/kg	88	1
CR-WSD3	Thallium	mg/kg	0.211	1
CR-WSD3	Vanadium	mg/kg	10.9	1
CR-WSD3	Zinc	mg/kg	92.2	1
CR-WSE1	Aluminum	mg/kg	6910	1
CR-WSE1	Antimony	mg/kg	0.171	1
CR-WSE1	Arsenic	mg/kg	4.01	1
CR-WSE1	Barium	mg/kg	47.5	1
CR-WSE1	Beryllium	mg/kg	0.27	1
CR-WSE1	Cadmium	mg/kg	0.143	1
CR-WSE1	Calcium	mg/kg	1840	1
CR-WSE1	Chromium	mg/kg	8.32	1
CR-WSE1	Cobalt	mg/kg	4.01	1
CR-WSE1	Copper	mg/kg	6	1
CR-WSE1	Iron	mg/kg	13700	1
CR-WSE1	Lead	mg/kg	5.82	1
CR-WSE1	Magnesium	mg/kg	4740	1
CR-WSE1	Manganese	mg/kg	219	1
CR-WSE1	Mercury	mg/kg	0.003	1
CR-WSE1	Nickel	mg/kg	8.36	1
CR-WSE1	Potassium	mg/kg	1400	1
CR-WSE1	Selenium	mg/kg	0.2	0
CR-WSE1	Silver	mg/kg	0.027	1
CR-WSE1	Sodium	mg/kg	117	1
CR-WSE1	Thallium	mg/kg	0.119	1
CR-WSE1	Vanadium	mg/kg	10.6	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CR-WSE1	Zinc	mg/kg	50.8	1
CR-WSE2	Aluminum	mg/kg	6120	1
CR-WSE2	Antimony	mg/kg	0.133	1
CR-WSE2	Arsenic	mg/kg	3.52	1
CR-WSE2	Barium	mg/kg	44.4	1
CR-WSE2	Beryllium	mg/kg	0.24	1
CR-WSE2	Cadmium	mg/kg	0.05	0
CR-WSE2	Calcium	mg/kg	2190	1
CR-WSE2	Chromium	mg/kg	8.29	1
CR-WSE2	Cobalt	mg/kg	3.85	1
CR-WSE2	Copper	mg/kg	6.4	1
CR-WSE2	Iron	mg/kg	11400	1
CR-WSE2	Lead	mg/kg	4.46	1
CR-WSE2	Magnesium	mg/kg	3820	1
CR-WSE2	Manganese	mg/kg	193	1
CR-WSE2	Mercury	mg/kg	0.004	1
CR-WSE2	Nickel	mg/kg	8.02	1
CR-WSE2	Potassium	mg/kg	1180	1
CR-WSE2	Selenium	mg/kg	0.2	0
CR-WSE2	Silver	mg/kg	0.03	1
CR-WSE2	Sodium	mg/kg	183	1
CR-WSE2	Thallium	mg/kg	0.065	0
CR-WSE2	Vanadium	mg/kg	11	1
CR-WSE2	Zinc	mg/kg	26.3	1
CR-WSE3	Aluminum	mg/kg	8370	1
CR-WSE3	Antimony	mg/kg	0.195	1
CR-WSE3	Arsenic	mg/kg	4.1	1
CR-WSE3	Barium	mg/kg	45	1
CR-WSE3	Beryllium	mg/kg	0.32	1
CR-WSE3	Cadmium	mg/kg	0.051	0
CR-WSE3	Calcium	mg/kg	1990	1
CR-WSE3	Chromium	mg/kg	8.02	1
CR-WSE3	Cobalt	mg/kg	4.3	1
CR-WSE3	Copper	mg/kg	7.1	1
CR-WSE3	Iron	mg/kg	15000	1
CR-WSE3	Lead	mg/kg	4.95	1
CR-WSE3	Magnesium	mg/kg	6330	1
CR-WSE3	Manganese	mg/kg	267	1
CR-WSE3	Mercury	mg/kg	0.004	1
CR-WSE3	Nickel	mg/kg	8.89	1
CR-WSE3	Potassium	mg/kg	1260	1
CR-WSE3	Selenium	mg/kg	0.2	0
CR-WSE3	Silver	mg/kg	0.101	1
CR-WSE3	Sodium	mg/kg	163	1
CR-WSE3	Thallium	mg/kg	0.083	0
CR-WSE3	Vanadium	mg/kg	10.4	1
CR-WSE3	Zinc	mg/kg	30.8	1
CS001	Aluminum	mg/kg	11300	1
CS001	Antimony	mg/kg	1.3	1

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Sample ID	Analyte	Unit	Value	Detect
CS001	Arsenic	mg/kg	6.7	1
CS001	Barium	mg/kg	136	1
CS001	Beryllium	mg/kg	0.66	1
CS001	Cadmium	mg/kg	0.08	0
CS001	Calcium	mg/kg	7150	1
CS001	Chromium	mg/kg	16.4	1
CS001	Cobalt	mg/kg	8.4	1
CS001	Copper	mg/kg	17.3	1
CS001	Iron	mg/kg	22900	1
CS001	Lead	mg/kg	11.4	1
CS001	Magnesium	mg/kg	6540	1
CS001	Manganese	mg/kg	475	1
CS001	Mercury	mg/kg	0.07	0
CS001	Nickel	mg/kg	15.6	1
CS001	Potassium	mg/kg	2470	1
CS001	Selenium	mg/kg	0.87	0
CS001	Silver	mg/kg	1.2	1
CS001	Sodium	mg/kg	259	1
CS001	Thallium	mg/kg	1	0
CS001	Vanadium	mg/kg	36.1	1
CS001	Zinc	mg/kg	77.9	1
CS002	Aluminum	mg/kg	6270	1
CS002	Antimony	mg/kg	0.74	0
CS002	Arsenic	mg/kg	4.5	0
CS002	Barium	mg/kg	79.6	1
CS002	Beryllium	mg/kg	0.45	1
CS002	Cadmium	mg/kg	0.62	1
CS002	Calcium	mg/kg	3090	1
CS002	Chromium	mg/kg	7.7	1
CS002	Cobalt	mg/kg	5.2	1
CS002	Copper	mg/kg	9.8	1
CS002	Iron	mg/kg	16700	1
CS002	Lead	mg/kg	22.3	1
CS002	Magnesium	mg/kg	3460	1
CS002	Manganese	mg/kg	434	1
CS002	Mercury	mg/kg	0.06	0
CS002	Nickel	mg/kg	8	1
CS002	Potassium	mg/kg	1250	1
CS002	Selenium	mg/kg	0.84	0
CS002	Silver	mg/kg	0.8	1
CS002	Sodium	mg/kg	184	1
CS002	Thallium	mg/kg	0.97	0
CS002	Vanadium	mg/kg	30	1
CS002	Zinc	mg/kg	149	1
CS003	Aluminum	mg/kg	8730	1
CS003	Antimony	mg/kg	0.81	1
CS003	Arsenic	mg/kg	4	0
CS003	Barium	mg/kg	113	1
CS003	Beryllium	mg/kg	0.71	1

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Sample ID	Analyte	Unit	Value	Detect
CS003	Cadmium	mg/kg	0.08	0
CS003	Calcium	mg/kg	5760	1
CS003	Chromium	mg/kg	8.8	1
CS003	Cobalt	mg/kg	7.2	1
CS003	Copper	mg/kg	11.1	1
CS003	Iron	mg/kg	23000	1
CS003	Lead	mg/kg	6.1	1
CS003	Magnesium	mg/kg	4340	1
CS003	Manganese	mg/kg	387	1
CS003	Mercury	mg/kg	0.06	0
CS003	Nickel	mg/kg	8.5	1
CS003	Potassium	mg/kg	1840	1
CS003	Selenium	mg/kg	0.91	0
CS003	Silver	mg/kg	1	1
CS003	Sodium	mg/kg	532	1
CS003	Thallium	mg/kg	1	0
CS003	Vanadium	mg/kg	51.3	1
CS003	Zinc	mg/kg	54.3	1
CS006	Aluminum	mg/kg	4430	1
CS006	Antimony	mg/kg	0.76	0
CS006	Arsenic	mg/kg	2.2	0
CS006	Barium	mg/kg	42.2	1
CS006	Beryllium	mg/kg	0.21	1
CS006	Cadmium	mg/kg	0.12	1
CS006	Calcium	mg/kg	4420	1
CS006	Chromium	mg/kg	8.8	1
CS006	Cobalt	mg/kg	3.3	1
CS006	Copper	mg/kg	10.4	1
CS006	Iron	mg/kg	8630	1
CS006	Lead	mg/kg	6.2	1
CS006	Magnesium	mg/kg	3140	1
CS006	Manganese	mg/kg	181	1
CS006	Mercury	mg/kg	0.06	0
CS006	Nickel	mg/kg	9.6	1
CS006	Potassium	mg/kg	763	1
CS006	Selenium	mg/kg	0.87	0
CS006	Silver	mg/kg	0.48	1
CS006	Sodium	mg/kg	197	1
CS006	Thallium	mg/kg	0.99	0
CS006	Vanadium	mg/kg	17.3	1
CS006	Zinc	mg/kg	36.8	1
CS009	Aluminum	mg/kg	7440	1
CS009	Antimony	mg/kg	0.65	0
CS009	Arsenic	mg/kg	6.6	1
CS009	Barium	mg/kg	61.1	1
CS009	Beryllium	mg/kg	0.29	1
CS009	Cadmium	mg/kg	0.25	1
CS009	Calcium	mg/kg	3350	1
CS009	Chromium	mg/kg	20.4	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
CS009	Cobalt	mg/kg	6.7	1
CS009	Copper	mg/kg	21.9	1
CS009	Iron	mg/kg	16500	1
CS009	Lead	mg/kg	16.7	1
CS009	Magnesium	mg/kg	4860	1
CS009	Manganese	mg/kg	250	1
CS009	Mercury	mg/kg	0.05	0
CS009	Nickel	mg/kg	21	1
CS009	Potassium	mg/kg	1070	1
CS009	Selenium	mg/kg	0.74	0
CS009	Silver	mg/kg	0.85	1
CS009	Sodium	mg/kg	231	1
CS009	Thallium	mg/kg	0.85	0
CS009	Vanadium	mg/kg	27.9	1
CS009	Zinc	mg/kg	90.9	1
EV049-SE-1-092719	Aluminum	mg/kg	4610	1
EV049-SE-1-092719	Antimony	mg/kg	0.102	1
EV049-SE-1-092719	Arsenic	mg/kg	1.11	1
EV049-SE-1-092719	Barium	mg/kg	48.7	1
EV049-SE-1-092719	Beryllium	mg/kg	0.191	1
EV049-SE-1-092719	Cadmium	mg/kg	0.22	1
EV049-SE-1-092719	Calcium	mg/kg	2250	1
EV049-SE-1-092719	Chromium	mg/kg	14.3	1
EV049-SE-1-092719	Cobalt	mg/kg	3.37	1
EV049-SE-1-092719	Copper	mg/kg	5.87	1
EV049-SE-1-092719	Iron	mg/kg	8490	1
EV049-SE-1-092719	Lead	mg/kg	12.1	1
EV049-SE-1-092719	Magnesium	mg/kg	2620	1
EV049-SE-1-092719	Manganese	mg/kg	104	1
EV049-SE-1-092719	Mercury	mg/kg	0.009	0
EV049-SE-1-092719	Nickel	mg/kg	13.5	1
EV049-SE-1-092719	Potassium	mg/kg	958	1
EV049-SE-1-092719	Selenium	mg/kg	0.2	0
EV049-SE-1-092719	Silver	mg/kg	0.031	1
EV049-SE-1-092719	Sodium	mg/kg	100	1
EV049-SE-1-092719	Thallium	mg/kg	0.081	1
EV049-SE-1-092719	Vanadium	mg/kg	13.5	1
EV049-SE-1-092719	Zinc	mg/kg	36.4	1
F-1-COR-03-001-2mn	Aluminum	mg/kg	9060	1
F-1-COR-03-001-2mn	Antimony	mg/kg	0.128	1
F-1-COR-03-001-2mn	Arsenic	mg/kg	2.43	1
F-1-COR-03-001-2mn	Barium	mg/kg	80.2	1
F-1-COR-03-001-2mn	Beryllium	mg/kg	0.268	1
F-1-COR-03-001-2mn	Cadmium	mg/kg	0.328	1
F-1-COR-03-001-2mn	Calcium	mg/kg	2370	1
F-1-COR-03-001-2mn	Chromium	mg/kg	12.5	1
F-1-COR-03-001-2mn	Cobalt	mg/kg	4.37	1
F-1-COR-03-001-2mn	Copper	mg/kg	11.1	1
F-1-COR-03-001-2mn	Iron	mg/kg	11700	1

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Sample ID	Analyte	Unit	Value	Detect
F-1-COR-03-001-2mn	Lead	mg/kg	58.5	1
F-1-COR-03-001-2mn	Magnesium	mg/kg	2750	1
F-1-COR-03-001-2mn	Manganese	mg/kg	129	1
F-1-COR-03-001-2mn	Mercury	mg/kg	0.007	1
F-1-COR-03-001-2mn	Nickel	mg/kg	10.9	1
F-1-COR-03-001-2mn	Potassium	mg/kg	1070	1
F-1-COR-03-001-2mn	Selenium	mg/kg	0.09	1
F-1-COR-03-001-2mn	Silver	mg/kg	0.1	1
F-1-COR-03-001-2mn	Sodium	mg/kg	142	1
F-1-COR-03-001-2mn	Thallium	mg/kg	0.088	1
F-1-COR-03-001-2mn	Vanadium	mg/kg	24.2	1
F-1-COR-03-001-2mn	Zinc	mg/kg	51.2	1
F-1-COR-03-002-2mn	Aluminum	mg/kg	10700	1
F-1-COR-03-002-2mn	Antimony	mg/kg	0.078	1
F-1-COR-03-002-2mn	Arsenic	mg/kg	2.23	1
F-1-COR-03-002-2mn	Barium	mg/kg	94.7	1
F-1-COR-03-002-2mn	Beryllium	mg/kg	0.298	1
F-1-COR-03-002-2mn	Cadmium	mg/kg	0.089	1
F-1-COR-03-002-2mn	Calcium	mg/kg	2320	1
F-1-COR-03-002-2mn	Chromium	mg/kg	13.2	1
F-1-COR-03-002-2mn	Cobalt	mg/kg	4.71	1
F-1-COR-03-002-2mn	Copper	mg/kg	11.4	1
F-1-COR-03-002-2mn	Iron	mg/kg	11500	1
F-1-COR-03-002-2mn	Lead	mg/kg	12.9	1
F-1-COR-03-002-2mn	Magnesium	mg/kg	3000	1
F-1-COR-03-002-2mn	Manganese	mg/kg	150	1
F-1-COR-03-002-2mn	Mercury	mg/kg	0.007	1
F-1-COR-03-002-2mn	Nickel	mg/kg	12.4	1
F-1-COR-03-002-2mn	Potassium	mg/kg	1270	1
F-1-COR-03-002-2mn	Selenium	mg/kg	0.08	1
F-1-COR-03-002-2mn	Silver	mg/kg	0.103	1
F-1-COR-03-002-2mn	Sodium	mg/kg	171	1
F-1-COR-03-002-2mn	Thallium	mg/kg	0.097	1
F-1-COR-03-002-2mn	Vanadium	mg/kg	22.6	1
F-1-COR-03-002-2mn	Zinc	mg/kg	36.8	1
F-1-COR-03-003-2mn	Aluminum	mg/kg	9920	1
F-1-COR-03-003-2mn	Antimony	mg/kg	0.081	1
F-1-COR-03-003-2mn	Arsenic	mg/kg	2.55	1
F-1-COR-03-003-2mn	Barium	mg/kg	88.9	1
F-1-COR-03-003-2mn	Beryllium	mg/kg	0.309	1
F-1-COR-03-003-2mn	Cadmium	mg/kg	0.099	1
F-1-COR-03-003-2mn	Calcium	mg/kg	2560	1
F-1-COR-03-003-2mn	Chromium	mg/kg	15	1
F-1-COR-03-003-2mn	Cobalt	mg/kg	5.04	1
F-1-COR-03-003-2mn	Copper	mg/kg	11	1
F-1-COR-03-003-2mn	Iron	mg/kg	13000	1
F-1-COR-03-003-2mn	Lead	mg/kg	9.11	1
F-1-COR-03-003-2mn	Magnesium	mg/kg	3200	1
F-1-COR-03-003-2mn	Manganese	mg/kg	158	1

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Sample ID	Analyte	Unit	Value	Detect
F-1-COR-03-003-2mn	Mercury	mg/kg	0.008	1
F-1-COR-03-003-2mn	Nickel	mg/kg	12.1	1
F-1-COR-03-003-2mn	Potassium	mg/kg	1530	1
F-1-COR-03-003-2mn	Selenium	mg/kg	0.09	1
F-1-COR-03-003-2mn	Silver	mg/kg	0.078	1
F-1-COR-03-003-2mn	Sodium	mg/kg	170	1
F-1-COR-03-003-2mn	Thallium	mg/kg	0.113	1
F-1-COR-03-003-2mn	Vanadium	mg/kg	26	1
F-1-COR-03-003-2mn	Zinc	mg/kg	37.5	1
GE definitive rep 1	Aluminum	mg/kg	2665	1
GE definitive rep 1	Antimony	mg/kg	0.059	0
GE definitive rep 1	Arsenic	mg/kg	0.855	1
GE definitive rep 1	Barium	mg/kg	40.7	1
GE definitive rep 1	Beryllium	mg/kg	0.11	1
GE definitive rep 1	Cadmium	mg/kg	0.107	1
GE definitive rep 1	Calcium	mg/kg	1475	1
GE definitive rep 1	Chromium	mg/kg	5.16	1
GE definitive rep 1	Cobalt	mg/kg	1.9	1
GE definitive rep 1	Copper	mg/kg	4.7	1
GE definitive rep 1	Iron	mg/kg	6420	1
GE definitive rep 1	Lead	mg/kg	5.535	1
GE definitive rep 1	Magnesium	mg/kg	1865	1
GE definitive rep 1	Manganese	mg/kg	86.55	1
GE definitive rep 1	Mercury	mg/kg	0.002	0
GE definitive rep 1	Nickel	mg/kg	7.125	1
GE definitive rep 1	Potassium	mg/kg	494	1
GE definitive rep 1	Selenium	mg/kg	0.1	0
GE definitive rep 1	Silver	mg/kg	0.0325	1
GE definitive rep 1	Sodium	mg/kg	55.5	1
GE definitive rep 1	Thallium	mg/kg	0.039	1
GE definitive rep 1	Vanadium	mg/kg	10.55	1
GE definitive rep 1	Zinc	mg/kg	30.7	1
GSC-COJ-01-001 Upp	Aluminum	mg/kg	8700	0
GSC-COJ-01-001 Upp	Antimony	mg/kg	0.07	0
GSC-COJ-01-001 Upp	Arsenic	mg/kg	3.4	1
GSC-COJ-01-001 Upp	Barium	mg/kg	84.4	1
GSC-COJ-01-001 Upp	Cadmium	mg/kg	0.15	0
GSC-COJ-01-001 Upp	Calcium	mg/kg	3400	0
GSC-COJ-01-001 Upp	Chromium	mg/kg	32.6	1
GSC-COJ-01-001 Upp	Cobalt	mg/kg	6.3	1
GSC-COJ-01-001 Upp	Copper	mg/kg	15.66	1
GSC-COJ-01-001 Upp	Iron	mg/kg	17100	1
GSC-COJ-01-001 Upp	Lead	mg/kg	9.21	1
GSC-COJ-01-001 Upp	Magnesium	mg/kg	4300	0
GSC-COJ-01-001 Upp	Manganese	mg/kg	250	1
GSC-COJ-01-001 Upp	Mercury	mg/kg	0.0005	0
GSC-COJ-01-001 Upp	Nickel	mg/kg	15.8	1
GSC-COJ-01-001 Upp	Potassium	mg/kg	1400	0
GSC-COJ-01-001 Upp	Selenium	mg/kg	0.2	0

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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-001	Upp Silver	mg/kg	0.025	1
GSC-COJ-01-001	Upp Sodium	mg/kg	120	0
GSC-COJ-01-001	Upp Thallium	mg/kg	0.09	0
GSC-COJ-01-001	Upp Vanadium	mg/kg	45	1
GSC-COJ-01-001	Upp Zinc	mg/kg	43.2	1
GSC-COJ-01-002	Upp Aluminum	mg/kg	6800	1
GSC-COJ-01-002	Upp Antimony	mg/kg	0.35	1
GSC-COJ-01-002	Upp Arsenic	mg/kg	5.9	1
GSC-COJ-01-002	Upp Barium	mg/kg	89	1
GSC-COJ-01-002	Upp Beryllium	mg/kg	0.15	1
GSC-COJ-01-002	Upp Cadmium	mg/kg	0.57	1
GSC-COJ-01-002	Upp Calcium	mg/kg	3800	1
GSC-COJ-01-002	Upp Chromium	mg/kg	16	1
GSC-COJ-01-002	Upp Cobalt	mg/kg	5.9	1
GSC-COJ-01-002	Upp Copper	mg/kg	17.6	1
GSC-COJ-01-002	Upp Iron	mg/kg	16400	1
GSC-COJ-01-002	Upp Lead	mg/kg	19	1
GSC-COJ-01-002	Upp Magnesium	mg/kg	3900	1
GSC-COJ-01-002	Upp Manganese	mg/kg	385	1
GSC-COJ-01-002	Upp Mercury	mg/kg	0.03	1
GSC-COJ-01-002	Upp Nickel	mg/kg	10.6	1
GSC-COJ-01-002	Upp Potassium	mg/kg	1500	1
GSC-COJ-01-002	Upp Selenium	mg/kg	0.2	0
GSC-COJ-01-002	Upp Silver	mg/kg	0.05	1
GSC-COJ-01-002	Upp Sodium	mg/kg	300	1
GSC-COJ-01-002	Upp Thallium	mg/kg	0.08	1
GSC-COJ-01-002	Upp Vanadium	mg/kg	38	1
GSC-COJ-01-002	Upp Zinc	mg/kg	80	1
GSC-COJ-01-003	Low Aluminum	mg/kg	5300	0
GSC-COJ-01-003	Low Antimony	mg/kg	0.07	0
GSC-COJ-01-003	Low Arsenic	mg/kg	5.9	1
GSC-COJ-01-003	Low Barium	mg/kg	60.9	1
GSC-COJ-01-003	Low Cadmium	mg/kg	0.24	0
GSC-COJ-01-003	Low Calcium	mg/kg	3300	0
GSC-COJ-01-003	Low Chromium	mg/kg	10.5	1
GSC-COJ-01-003	Low Cobalt	mg/kg	5.9	1
GSC-COJ-01-003	Low Copper	mg/kg	37.94	1
GSC-COJ-01-003	Low Iron	mg/kg	13400	1
GSC-COJ-01-003	Low Lead	mg/kg	9.69	1
GSC-COJ-01-003	Low Magnesium	mg/kg	4100	0
GSC-COJ-01-003	Low Manganese	mg/kg	257	1
GSC-COJ-01-003	Low Mercury	mg/kg	0.0008	1
GSC-COJ-01-003	Low Nickel	mg/kg	9.6	1
GSC-COJ-01-003	Low Potassium	mg/kg	1100	0
GSC-COJ-01-003	Low Selenium	mg/kg	0.1	0
GSC-COJ-01-003	Low Silver	mg/kg	0.063	1
GSC-COJ-01-003	Low Sodium	mg/kg	140	0
GSC-COJ-01-003	Low Thallium	mg/kg	0.06	0
GSC-COJ-01-003	Low Vanadium	mg/kg	28	1

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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-003	Low	Zinc	mg/kg	67	1
GSC-COJ-01-004	Upp	Aluminum	mg/kg	13000	1
GSC-COJ-01-004	Upp	Antimony	mg/kg	0.2	1
GSC-COJ-01-004	Upp	Arsenic	mg/kg	3.3	1
GSC-COJ-01-004	Upp	Barium	mg/kg	95.6	1
GSC-COJ-01-004	Upp	Beryllium	mg/kg	0.3	1
GSC-COJ-01-004	Upp	Cadmium	mg/kg	0.52	1
GSC-COJ-01-004	Upp	Calcium	mg/kg	5400	1
GSC-COJ-01-004	Upp	Chromium	mg/kg	46	1
GSC-COJ-01-004	Upp	Cobalt	mg/kg	10.2	1
GSC-COJ-01-004	Upp	Copper	mg/kg	13.6	1
GSC-COJ-01-004	Upp	Iron	mg/kg	25300	1
GSC-COJ-01-004	Upp	Lead	mg/kg	9.4	1
GSC-COJ-01-004	Upp	Magnesium	mg/kg	10100	1
GSC-COJ-01-004	Upp	Manganese	mg/kg	480	1
GSC-COJ-01-004	Upp	Mercury	mg/kg	0.02	1
GSC-COJ-01-004	Upp	Nickel	mg/kg	34	1
GSC-COJ-01-004	Upp	Potassium	mg/kg	900	1
GSC-COJ-01-004	Upp	Selenium	mg/kg	0.2	1
GSC-COJ-01-004	Upp	Silver	mg/kg	0.06	1
GSC-COJ-01-004	Upp	Sodium	mg/kg	300	1
GSC-COJ-01-004	Upp	Thallium	mg/kg	0.1	1
GSC-COJ-01-004	Upp	Vanadium	mg/kg	58	1
GSC-COJ-01-004	Upp	Zinc	mg/kg	88	1
GSC-COJ-01-005	Mid	Aluminum	mg/kg	10300	1
GSC-COJ-01-005	Mid	Antimony	mg/kg	0.3	1
GSC-COJ-01-005	Mid	Arsenic	mg/kg	3	1
GSC-COJ-01-005	Mid	Barium	mg/kg	70	1
GSC-COJ-01-005	Mid	Beryllium	mg/kg	0.2	1
GSC-COJ-01-005	Mid	Cadmium	mg/kg	0.39	1
GSC-COJ-01-005	Mid	Calcium	mg/kg	4400	1
GSC-COJ-01-005	Mid	Chromium	mg/kg	32	1
GSC-COJ-01-005	Mid	Cobalt	mg/kg	7.8	1
GSC-COJ-01-005	Mid	Copper	mg/kg	21.2	1
GSC-COJ-01-005	Mid	Iron	mg/kg	20700	1
GSC-COJ-01-005	Mid	Lead	mg/kg	12.4	1
GSC-COJ-01-005	Mid	Magnesium	mg/kg	7400	1
GSC-COJ-01-005	Mid	Manganese	mg/kg	305	1
GSC-COJ-01-005	Mid	Mercury	mg/kg	0.01	1
GSC-COJ-01-005	Mid	Nickel	mg/kg	20	1
GSC-COJ-01-005	Mid	Potassium	mg/kg	800	1
GSC-COJ-01-005	Mid	Selenium	mg/kg	0.2	1
GSC-COJ-01-005	Mid	Silver	mg/kg	0.06	1
GSC-COJ-01-005	Mid	Sodium	mg/kg	300	1
GSC-COJ-01-005	Mid	Thallium	mg/kg	0.06	1
GSC-COJ-01-005	Mid	Vanadium	mg/kg	47	1
GSC-COJ-01-005	Mid	Zinc	mg/kg	64	1
GSC-COJ-01-006	Low	Aluminum	mg/kg	9500	1
GSC-COJ-01-006	Low	Antimony	mg/kg	0.35	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-006	Low	Arsenic	mg/kg	2.2	1
GSC-COJ-01-006	Low	Barium	mg/kg	65.8	1
GSC-COJ-01-006	Low	Beryllium	mg/kg	0.2	1
GSC-COJ-01-006	Low	Cadmium	mg/kg	0.57	1
GSC-COJ-01-006	Low	Calcium	mg/kg	3800	1
GSC-COJ-01-006	Low	Chromium	mg/kg	26	1
GSC-COJ-01-006	Low	Cobalt	mg/kg	7.3	1
GSC-COJ-01-006	Low	Copper	mg/kg	9.8	1
GSC-COJ-01-006	Low	Iron	mg/kg	20200	1
GSC-COJ-01-006	Low	Lead	mg/kg	17	1
GSC-COJ-01-006	Low	Magnesium	mg/kg	7600	1
GSC-COJ-01-006	Low	Manganese	mg/kg	320	1
GSC-COJ-01-006	Low	Mercury	mg/kg	0.02	1
GSC-COJ-01-006	Low	Nickel	mg/kg	17.8	1
GSC-COJ-01-006	Low	Potassium	mg/kg	900	1
GSC-COJ-01-006	Low	Selenium	mg/kg	0.2	1
GSC-COJ-01-006	Low	Silver	mg/kg	0.05	1
GSC-COJ-01-006	Low	Sodium	mg/kg	200	1
GSC-COJ-01-006	Low	Thallium	mg/kg	0.08	1
GSC-COJ-01-006	Low	Vanadium	mg/kg	47	1
GSC-COJ-01-006	Low	Zinc	mg/kg	80	1
GSC-COJ-01-007	Low	Aluminum	mg/kg	6600	1
GSC-COJ-01-007	Low	Antimony	mg/kg	0.25	1
GSC-COJ-01-007	Low	Arsenic	mg/kg	2.9	1
GSC-COJ-01-007	Low	Barium	mg/kg	57.6	1
GSC-COJ-01-007	Low	Beryllium	mg/kg	0.15	1
GSC-COJ-01-007	Low	Cadmium	mg/kg	0.2	1
GSC-COJ-01-007	Low	Calcium	mg/kg	4000	1
GSC-COJ-01-007	Low	Chromium	mg/kg	24	1
GSC-COJ-01-007	Low	Cobalt	mg/kg	5.1	1
GSC-COJ-01-007	Low	Copper	mg/kg	9.4	1
GSC-COJ-01-007	Low	Iron	mg/kg	15300	1
GSC-COJ-01-007	Low	Lead	mg/kg	5.8	1
GSC-COJ-01-007	Low	Magnesium	mg/kg	4400	1
GSC-COJ-01-007	Low	Manganese	mg/kg	230	1
GSC-COJ-01-007	Low	Mercury	mg/kg	0.01	0
GSC-COJ-01-007	Low	Nickel	mg/kg	11	1
GSC-COJ-01-007	Low	Potassium	mg/kg	800	1
GSC-COJ-01-007	Low	Selenium	mg/kg	0.2	1
GSC-COJ-01-007	Low	Silver	mg/kg	0.05	1
GSC-COJ-01-007	Low	Sodium	mg/kg	200	1
GSC-COJ-01-007	Low	Thallium	mg/kg	0.06	1
GSC-COJ-01-007	Low	Vanadium	mg/kg	38	1
GSC-COJ-01-007	Low	Zinc	mg/kg	40	1
GSC-COJ-01-008	Mid	Aluminum	mg/kg	8200	1
GSC-COJ-01-008	Mid	Antimony	mg/kg	0.05	1
GSC-COJ-01-008	Mid	Arsenic	mg/kg	3.9	1
GSC-COJ-01-008	Mid	Barium	mg/kg	80.2	1
GSC-COJ-01-008	Mid	Beryllium	mg/kg	0.15	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-008 Mid	Cadmium	mg/kg	0.14	1
GSC-COJ-01-008 Mid	Calcium	mg/kg	3400	1
GSC-COJ-01-008 Mid	Chromium	mg/kg	15	1
GSC-COJ-01-008 Mid	Cobalt	mg/kg	6.8	1
GSC-COJ-01-008 Mid	Copper	mg/kg	13.6	1
GSC-COJ-01-008 Mid	Iron	mg/kg	19500	1
GSC-COJ-01-008 Mid	Lead	mg/kg	4	1
GSC-COJ-01-008 Mid	Magnesium	mg/kg	5600	1
GSC-COJ-01-008 Mid	Manganese	mg/kg	330	1
GSC-COJ-01-008 Mid	Mercury	mg/kg	0.01	0
GSC-COJ-01-008 Mid	Nickel	mg/kg	8.4	1
GSC-COJ-01-008 Mid	Potassium	mg/kg	1200	1
GSC-COJ-01-008 Mid	Selenium	mg/kg	0.2	0
GSC-COJ-01-008 Mid	Silver	mg/kg	0.03	1
GSC-COJ-01-008 Mid	Sodium	mg/kg	200	1
GSC-COJ-01-008 Mid	Thallium	mg/kg	0.08	1
GSC-COJ-01-008 Mid	Vanadium	mg/kg	51	1
GSC-COJ-01-008 Mid	Zinc	mg/kg	44	1
GSC-COJ-01-009 Upp	Aluminum	mg/kg	6700	1
GSC-COJ-01-009 Upp	Antimony	mg/kg	0.05	1
GSC-COJ-01-009 Upp	Arsenic	mg/kg	3.6	1
GSC-COJ-01-009 Upp	Barium	mg/kg	57	1
GSC-COJ-01-009 Upp	Beryllium	mg/kg	0.05	1
GSC-COJ-01-009 Upp	Cadmium	mg/kg	0.1	1
GSC-COJ-01-009 Upp	Calcium	mg/kg	2800	1
GSC-COJ-01-009 Upp	Chromium	mg/kg	11	1
GSC-COJ-01-009 Upp	Cobalt	mg/kg	5.2	1
GSC-COJ-01-009 Upp	Copper	mg/kg	17	1
GSC-COJ-01-009 Upp	Iron	mg/kg	16200	1
GSC-COJ-01-009 Upp	Lead	mg/kg	3.2	1
GSC-COJ-01-009 Upp	Magnesium	mg/kg	4200	1
GSC-COJ-01-009 Upp	Manganese	mg/kg	280	1
GSC-COJ-01-009 Upp	Mercury	mg/kg	0.01	0
GSC-COJ-01-009 Upp	Nickel	mg/kg	7.6	1
GSC-COJ-01-009 Upp	Potassium	mg/kg	800	1
GSC-COJ-01-009 Upp	Selenium	mg/kg	0.2	0
GSC-COJ-01-009 Upp	Silver	mg/kg	0.03	1
GSC-COJ-01-009 Upp	Sodium	mg/kg	200	1
GSC-COJ-01-009 Upp	Thallium	mg/kg	0.06	1
GSC-COJ-01-009 Upp	Vanadium	mg/kg	39	1
GSC-COJ-01-009 Upp	Zinc	mg/kg	38	1
GSC-COJ-01-010 Upp	Aluminum	mg/kg	5900	1
GSC-COJ-01-010 Upp	Antimony	mg/kg	0.3	1
GSC-COJ-01-010 Upp	Arsenic	mg/kg	2	1
GSC-COJ-01-010 Upp	Barium	mg/kg	56	1
GSC-COJ-01-010 Upp	Beryllium	mg/kg	0.15	1
GSC-COJ-01-010 Upp	Cadmium	mg/kg	0.25	1
GSC-COJ-01-010 Upp	Calcium	mg/kg	2900	1
GSC-COJ-01-010 Upp	Chromium	mg/kg	12	1

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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-010	Upp	Cobalt	mg/kg	4.1	1
GSC-COJ-01-010	Upp	Copper	mg/kg	45.8	1
GSC-COJ-01-010	Upp	Iron	mg/kg	11700	1
GSC-COJ-01-010	Upp	Lead	mg/kg	10	1
GSC-COJ-01-010	Upp	Magnesium	mg/kg	3000	1
GSC-COJ-01-010	Upp	Manganese	mg/kg	215	1
GSC-COJ-01-010	Upp	Mercury	mg/kg	0.01	0
GSC-COJ-01-010	Upp	Nickel	mg/kg	7.8	1
GSC-COJ-01-010	Upp	Potassium	mg/kg	900	1
GSC-COJ-01-010	Upp	Selenium	mg/kg	0.2	0
GSC-COJ-01-010	Upp	Silver	mg/kg	0.04	1
GSC-COJ-01-010	Upp	Sodium	mg/kg	300	1
GSC-COJ-01-010	Upp	Thallium	mg/kg	0.06	1
GSC-COJ-01-010	Upp	Vanadium	mg/kg	23	1
GSC-COJ-01-010	Upp	Zinc	mg/kg	44	1
GSC-COJ-01-011	Low	Aluminum	mg/kg	3400	1
GSC-COJ-01-011	Low	Antimony	mg/kg	0.3	1
GSC-COJ-01-011	Low	Arsenic	mg/kg	1.2	1
GSC-COJ-01-011	Low	Barium	mg/kg	35.4	1
GSC-COJ-01-011	Low	Beryllium	mg/kg	0.1	1
GSC-COJ-01-011	Low	Cadmium	mg/kg	0.24	1
GSC-COJ-01-011	Low	Calcium	mg/kg	1500	1
GSC-COJ-01-011	Low	Chromium	mg/kg	7	1
GSC-COJ-01-011	Low	Cobalt	mg/kg	2.2	1
GSC-COJ-01-011	Low	Copper	mg/kg	5	1
GSC-COJ-01-011	Low	Iron	mg/kg	7100	1
GSC-COJ-01-011	Low	Lead	mg/kg	9.2	1
GSC-COJ-01-011	Low	Magnesium	mg/kg	1700	1
GSC-COJ-01-011	Low	Manganese	mg/kg	115	1
GSC-COJ-01-011	Low	Mercury	mg/kg	0.01	1
GSC-COJ-01-011	Low	Nickel	mg/kg	5.4	1
GSC-COJ-01-011	Low	Potassium	mg/kg	500	1
GSC-COJ-01-011	Low	Selenium	mg/kg	0.2	0
GSC-COJ-01-011	Low	Silver	mg/kg	0.04	1
GSC-COJ-01-011	Low	Sodium	mg/kg	100	1
GSC-COJ-01-011	Low	Thallium	mg/kg	0.04	1
GSC-COJ-01-011	Low	Vanadium	mg/kg	14	1
GSC-COJ-01-011	Low	Zinc	mg/kg	30	1
GSC-COJ-01-012	Upp	Aluminum	mg/kg	5500	1
GSC-COJ-01-012	Upp	Antimony	mg/kg	0.25	1
GSC-COJ-01-012	Upp	Arsenic	mg/kg	1.9	1
GSC-COJ-01-012	Upp	Barium	mg/kg	43.2	1
GSC-COJ-01-012	Upp	Beryllium	mg/kg	0.15	1
GSC-COJ-01-012	Upp	Cadmium	mg/kg	0.46	1
GSC-COJ-01-012	Upp	Calcium	mg/kg	3300	1
GSC-COJ-01-012	Upp	Chromium	mg/kg	11	1
GSC-COJ-01-012	Upp	Cobalt	mg/kg	3.9	1
GSC-COJ-01-012	Upp	Copper	mg/kg	8.6	1
GSC-COJ-01-012	Upp	Iron	mg/kg	10900	1

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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-012	Upp	Lead	mg/kg	23	1
GSC-COJ-01-012	Upp	Magnesium	mg/kg	3000	1
GSC-COJ-01-012	Upp	Manganese	mg/kg	165	1
GSC-COJ-01-012	Upp	Mercury	mg/kg	0.01	0
GSC-COJ-01-012	Upp	Nickel	mg/kg	8.4	1
GSC-COJ-01-012	Upp	Potassium	mg/kg	900	1
GSC-COJ-01-012	Upp	Selenium	mg/kg	0.2	0
GSC-COJ-01-012	Upp	Silver	mg/kg	0.07	1
GSC-COJ-01-012	Upp	Sodium	mg/kg	300	1
GSC-COJ-01-012	Upp	Thallium	mg/kg	0.06	1
GSC-COJ-01-012	Upp	Vanadium	mg/kg	23	1
GSC-COJ-01-012	Upp	Zinc	mg/kg	58	1
GSC-COJ-01-013	Low	Aluminum	mg/kg	4800	1
GSC-COJ-01-013	Low	Antimony	mg/kg	0.7	1
GSC-COJ-01-013	Low	Arsenic	mg/kg	19.6	1
GSC-COJ-01-013	Low	Barium	mg/kg	30.4	1
GSC-COJ-01-013	Low	Beryllium	mg/kg	0.15	1
GSC-COJ-01-013	Low	Cadmium	mg/kg	0.51	1
GSC-COJ-01-013	Low	Calcium	mg/kg	2400	1
GSC-COJ-01-013	Low	Chromium	mg/kg	24	1
GSC-COJ-01-013	Low	Cobalt	mg/kg	4.3	1
GSC-COJ-01-013	Low	Copper	mg/kg	8.4	1
GSC-COJ-01-013	Low	Iron	mg/kg	19200	1
GSC-COJ-01-013	Low	Lead	mg/kg	26.6	1
GSC-COJ-01-013	Low	Magnesium	mg/kg	2800	1
GSC-COJ-01-013	Low	Manganese	mg/kg	185	1
GSC-COJ-01-013	Low	Mercury	mg/kg	0.01	1
GSC-COJ-01-013	Low	Nickel	mg/kg	9.2	1
GSC-COJ-01-013	Low	Potassium	mg/kg	600	1
GSC-COJ-01-013	Low	Selenium	mg/kg	0.2	0
GSC-COJ-01-013	Low	Silver	mg/kg	0.06	1
GSC-COJ-01-013	Low	Sodium	mg/kg	200	1
GSC-COJ-01-013	Low	Thallium	mg/kg	0.08	1
GSC-COJ-01-013	Low	Vanadium	mg/kg	46	1
GSC-COJ-01-013	Low	Zinc	mg/kg	74	1
GSC-COJ-01-014	Upp	Aluminum	mg/kg	6100	1
GSC-COJ-01-014	Upp	Antimony	mg/kg	0.2	1
GSC-COJ-01-014	Upp	Arsenic	mg/kg	1.9	1
GSC-COJ-01-014	Upp	Barium	mg/kg	84.2	1
GSC-COJ-01-014	Upp	Beryllium	mg/kg	0.3	1
GSC-COJ-01-014	Upp	Cadmium	mg/kg	0.3	1
GSC-COJ-01-014	Upp	Calcium	mg/kg	3400	1
GSC-COJ-01-014	Upp	Chromium	mg/kg	32	1
GSC-COJ-01-014	Upp	Cobalt	mg/kg	4.9	1
GSC-COJ-01-014	Upp	Copper	mg/kg	8.2	1
GSC-COJ-01-014	Upp	Iron	mg/kg	17500	1
GSC-COJ-01-014	Upp	Lead	mg/kg	10.6	1
GSC-COJ-01-014	Upp	Magnesium	mg/kg	3100	1
GSC-COJ-01-014	Upp	Manganese	mg/kg	230	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-014 Upp	Mercury	mg/kg	0.01	1
GSC-COJ-01-014 Upp	Nickel	mg/kg	11.6	1
GSC-COJ-01-014 Upp	Potassium	mg/kg	1100	1
GSC-COJ-01-014 Upp	Selenium	mg/kg	0.2	0
GSC-COJ-01-014 Upp	Silver	mg/kg	0.09	1
GSC-COJ-01-014 Upp	Sodium	mg/kg	200	1
GSC-COJ-01-014 Upp	Thallium	mg/kg	0.08	1
GSC-COJ-01-014 Upp	Vanadium	mg/kg	45	1
GSC-COJ-01-014 Upp	Zinc	mg/kg	42	1
GSC-COJ-01-015 Upp	Aluminum	mg/kg	8900	1
GSC-COJ-01-015 Upp	Antimony	mg/kg	0.15	1
GSC-COJ-01-015 Upp	Arsenic	mg/kg	3.4	1
GSC-COJ-01-015 Upp	Barium	mg/kg	129.2	1
GSC-COJ-01-015 Upp	Beryllium	mg/kg	0.3	1
GSC-COJ-01-015 Upp	Cadmium	mg/kg	0.4	1
GSC-COJ-01-015 Upp	Calcium	mg/kg	4500	1
GSC-COJ-01-015 Upp	Chromium	mg/kg	30	1
GSC-COJ-01-015 Upp	Cobalt	mg/kg	6.8	1
GSC-COJ-01-015 Upp	Copper	mg/kg	11.8	1
GSC-COJ-01-015 Upp	Iron	mg/kg	18000	1
GSC-COJ-01-015 Upp	Lead	mg/kg	11.4	1
GSC-COJ-01-015 Upp	Magnesium	mg/kg	5400	1
GSC-COJ-01-015 Upp	Manganese	mg/kg	240	1
GSC-COJ-01-015 Upp	Mercury	mg/kg	0.01	0
GSC-COJ-01-015 Upp	Nickel	mg/kg	18	1
GSC-COJ-01-015 Upp	Potassium	mg/kg	1400	1
GSC-COJ-01-015 Upp	Selenium	mg/kg	0.2	0
GSC-COJ-01-015 Upp	Silver	mg/kg	0.07	1
GSC-COJ-01-015 Upp	Sodium	mg/kg	300	1
GSC-COJ-01-015 Upp	Thallium	mg/kg	0.1	1
GSC-COJ-01-015 Upp	Vanadium	mg/kg	41	1
GSC-COJ-01-015 Upp	Zinc	mg/kg	60	1
GSC-COJ-01-016 Upp	Aluminum	mg/kg	10100	1
GSC-COJ-01-016 Upp	Antimony	mg/kg	0.15	1
GSC-COJ-01-016 Upp	Arsenic	mg/kg	1.7	1
GSC-COJ-01-016 Upp	Barium	mg/kg	165.8	1
GSC-COJ-01-016 Upp	Beryllium	mg/kg	0.25	1
GSC-COJ-01-016 Upp	Cadmium	mg/kg	0.63	1
GSC-COJ-01-016 Upp	Calcium	mg/kg	11100	1
GSC-COJ-01-016 Upp	Chromium	mg/kg	26	1
GSC-COJ-01-016 Upp	Cobalt	mg/kg	8	1
GSC-COJ-01-016 Upp	Copper	mg/kg	23	1
GSC-COJ-01-016 Upp	Iron	mg/kg	16900	1
GSC-COJ-01-016 Upp	Lead	mg/kg	7.8	1
GSC-COJ-01-016 Upp	Magnesium	mg/kg	3900	1
GSC-COJ-01-016 Upp	Manganese	mg/kg	695	1
GSC-COJ-01-016 Upp	Mercury	mg/kg	0.03	1
GSC-COJ-01-016 Upp	Nickel	mg/kg	47	1
GSC-COJ-01-016 Upp	Potassium	mg/kg	700	1

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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-016 Upp	Selenium	mg/kg	2	1
GSC-COJ-01-016 Upp	Silver	mg/kg	0.2	1
GSC-COJ-01-016 Upp	Sodium	mg/kg	400	1
GSC-COJ-01-016 Upp	Thallium	mg/kg	0.18	1
GSC-COJ-01-016 Upp	Vanadium	mg/kg	37	1
GSC-COJ-01-016 Upp	Zinc	mg/kg	142	1
GSC-COJ-01-017 Mid	Aluminum	mg/kg	7000	1
GSC-COJ-01-017 Mid	Antimony	mg/kg	0.05	0
GSC-COJ-01-017 Mid	Arsenic	mg/kg	1.2	1
GSC-COJ-01-017 Mid	Barium	mg/kg	112	1
GSC-COJ-01-017 Mid	Beryllium	mg/kg	0.25	1
GSC-COJ-01-017 Mid	Cadmium	mg/kg	0.19	1
GSC-COJ-01-017 Mid	Calcium	mg/kg	4600	1
GSC-COJ-01-017 Mid	Chromium	mg/kg	20	1
GSC-COJ-01-017 Mid	Cobalt	mg/kg	4.9	1
GSC-COJ-01-017 Mid	Copper	mg/kg	7	1
GSC-COJ-01-017 Mid	Iron	mg/kg	17700	1
GSC-COJ-01-017 Mid	Lead	mg/kg	6.6	1
GSC-COJ-01-017 Mid	Magnesium	mg/kg	3700	1
GSC-COJ-01-017 Mid	Manganese	mg/kg	345	1
GSC-COJ-01-017 Mid	Mercury	mg/kg	0.01	0
GSC-COJ-01-017 Mid	Nickel	mg/kg	11.2	1
GSC-COJ-01-017 Mid	Potassium	mg/kg	1000	1
GSC-COJ-01-017 Mid	Selenium	mg/kg	0.2	1
GSC-COJ-01-017 Mid	Silver	mg/kg	0.05	1
GSC-COJ-01-017 Mid	Sodium	mg/kg	200	1
GSC-COJ-01-017 Mid	Thallium	mg/kg	0.1	1
GSC-COJ-01-017 Mid	Vanadium	mg/kg	37	1
GSC-COJ-01-017 Mid	Zinc	mg/kg	42	1
GSC-COJ-01-018 Low	Aluminum	mg/kg	5100	1
GSC-COJ-01-018 Low	Antimony	mg/kg	0.2	1
GSC-COJ-01-018 Low	Arsenic	mg/kg	1.1	1
GSC-COJ-01-018 Low	Barium	mg/kg	92.2	1
GSC-COJ-01-018 Low	Beryllium	mg/kg	0.2	1
GSC-COJ-01-018 Low	Cadmium	mg/kg	0.26	1
GSC-COJ-01-018 Low	Calcium	mg/kg	4300	1
GSC-COJ-01-018 Low	Chromium	mg/kg	20	1
GSC-COJ-01-018 Low	Cobalt	mg/kg	4.4	1
GSC-COJ-01-018 Low	Copper	mg/kg	7	1
GSC-COJ-01-018 Low	Iron	mg/kg	15600	1
GSC-COJ-01-018 Low	Lead	mg/kg	11.8	1
GSC-COJ-01-018 Low	Magnesium	mg/kg	3600	1
GSC-COJ-01-018 Low	Manganese	mg/kg	300	1
GSC-COJ-01-018 Low	Mercury	mg/kg	0.01	0
GSC-COJ-01-018 Low	Nickel	mg/kg	14.4	1
GSC-COJ-01-018 Low	Potassium	mg/kg	800	1
GSC-COJ-01-018 Low	Selenium	mg/kg	0.2	0
GSC-COJ-01-018 Low	Silver	mg/kg	0.06	1
GSC-COJ-01-018 Low	Sodium	mg/kg	200	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-018 Low	Thallium	mg/kg	0.08	1
GSC-COJ-01-018 Low	Vanadium	mg/kg	32	1
GSC-COJ-01-018 Low	Zinc	mg/kg	40	1
GSC-COJ-01-019 Low	Aluminum	mg/kg	4000	1
GSC-COJ-01-019 Low	Antimony	mg/kg	0.15	1
GSC-COJ-01-019 Low	Arsenic	mg/kg	0.7	1
GSC-COJ-01-019 Low	Barium	mg/kg	82.6	1
GSC-COJ-01-019 Low	Beryllium	mg/kg	0.15	1
GSC-COJ-01-019 Low	Cadmium	mg/kg	0.22	1
GSC-COJ-01-019 Low	Calcium	mg/kg	3500	1
GSC-COJ-01-019 Low	Chromium	mg/kg	21	1
GSC-COJ-01-019 Low	Cobalt	mg/kg	3.8	1
GSC-COJ-01-019 Low	Copper	mg/kg	6.6	1
GSC-COJ-01-019 Low	Iron	mg/kg	14400	1
GSC-COJ-01-019 Low	Lead	mg/kg	6.4	1
GSC-COJ-01-019 Low	Magnesium	mg/kg	3900	1
GSC-COJ-01-019 Low	Manganese	mg/kg	180	1
GSC-COJ-01-019 Low	Mercury	mg/kg	0.01	1
GSC-COJ-01-019 Low	Nickel	mg/kg	16.8	1
GSC-COJ-01-019 Low	Potassium	mg/kg	1200	1
GSC-COJ-01-019 Low	Selenium	mg/kg	0.2	0
GSC-COJ-01-019 Low	Silver	mg/kg	0.05	1
GSC-COJ-01-019 Low	Sodium	mg/kg	200	1
GSC-COJ-01-019 Low	Thallium	mg/kg	0.06	1
GSC-COJ-01-019 Low	Vanadium	mg/kg	31	1
GSC-COJ-01-019 Low	Zinc	mg/kg	32	1
GSC-COJ-01-020 Upp	Aluminum	mg/kg	5500	1
GSC-COJ-01-020 Upp	Antimony	mg/kg	0.15	1
GSC-COJ-01-020 Upp	Arsenic	mg/kg	1.4	1
GSC-COJ-01-020 Upp	Barium	mg/kg	68.8	1
GSC-COJ-01-020 Upp	Beryllium	mg/kg	0.1	1
GSC-COJ-01-020 Upp	Cadmium	mg/kg	0.2	1
GSC-COJ-01-020 Upp	Calcium	mg/kg	2600	1
GSC-COJ-01-020 Upp	Chromium	mg/kg	12	1
GSC-COJ-01-020 Upp	Cobalt	mg/kg	3.9	1
GSC-COJ-01-020 Upp	Copper	mg/kg	9	1
GSC-COJ-01-020 Upp	Iron	mg/kg	12500	1
GSC-COJ-01-020 Upp	Lead	mg/kg	9.4	1
GSC-COJ-01-020 Upp	Magnesium	mg/kg	2900	1
GSC-COJ-01-020 Upp	Manganese	mg/kg	185	1
GSC-COJ-01-020 Upp	Mercury	mg/kg	0.01	0
GSC-COJ-01-020 Upp	Nickel	mg/kg	9	1
GSC-COJ-01-020 Upp	Potassium	mg/kg	1000	1
GSC-COJ-01-020 Upp	Selenium	mg/kg	0.2	0
GSC-COJ-01-020 Upp	Silver	mg/kg	0.07	1
GSC-COJ-01-020 Upp	Sodium	mg/kg	200	1
GSC-COJ-01-020 Upp	Thallium	mg/kg	0.08	1
GSC-COJ-01-020 Upp	Vanadium	mg/kg	29	1
GSC-COJ-01-020 Upp	Zinc	mg/kg	36	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-021 Low	Aluminum	mg/kg	7700	1
GSC-COJ-01-021 Low	Antimony	mg/kg	0.45	1
GSC-COJ-01-021 Low	Arsenic	mg/kg	2.8	1
GSC-COJ-01-021 Low	Barium	mg/kg	103.8	1
GSC-COJ-01-021 Low	Beryllium	mg/kg	0.15	1
GSC-COJ-01-021 Low	Cadmium	mg/kg	0.39	1
GSC-COJ-01-021 Low	Calcium	mg/kg	2900	1
GSC-COJ-01-021 Low	Chromium	mg/kg	22	1
GSC-COJ-01-021 Low	Cobalt	mg/kg	6	1
GSC-COJ-01-021 Low	Copper	mg/kg	17.8	1
GSC-COJ-01-021 Low	Iron	mg/kg	17000	1
GSC-COJ-01-021 Low	Lead	mg/kg	11.8	1
GSC-COJ-01-021 Low	Magnesium	mg/kg	4700	1
GSC-COJ-01-021 Low	Manganese	mg/kg	205	1
GSC-COJ-01-021 Low	Mercury	mg/kg	0.01	1
GSC-COJ-01-021 Low	Nickel	mg/kg	13.8	1
GSC-COJ-01-021 Low	Potassium	mg/kg	1800	1
GSC-COJ-01-021 Low	Selenium	mg/kg	0.2	1
GSC-COJ-01-021 Low	Silver	mg/kg	0.07	1
GSC-COJ-01-021 Low	Sodium	mg/kg	200	1
GSC-COJ-01-021 Low	Thallium	mg/kg	0.14	1
GSC-COJ-01-021 Low	Vanadium	mg/kg	41	1
GSC-COJ-01-021 Low	Zinc	mg/kg	80	1
GSC-COJ-01-023 Low	Aluminum	mg/kg	7300	1
GSC-COJ-01-023 Low	Antimony	mg/kg	0.15	1
GSC-COJ-01-023 Low	Arsenic	mg/kg	2.3	1
GSC-COJ-01-023 Low	Barium	mg/kg	113.4	1
GSC-COJ-01-023 Low	Beryllium	mg/kg	0.15	1
GSC-COJ-01-023 Low	Cadmium	mg/kg	0.32	1
GSC-COJ-01-023 Low	Calcium	mg/kg	3800	1
GSC-COJ-01-023 Low	Chromium	mg/kg	24	1
GSC-COJ-01-023 Low	Cobalt	mg/kg	5.4	1
GSC-COJ-01-023 Low	Copper	mg/kg	12.4	1
GSC-COJ-01-023 Low	Iron	mg/kg	18000	1
GSC-COJ-01-023 Low	Lead	mg/kg	8.8	1
GSC-COJ-01-023 Low	Magnesium	mg/kg	4300	1
GSC-COJ-01-023 Low	Manganese	mg/kg	200	1
GSC-COJ-01-023 Low	Mercury	mg/kg	0.01	1
GSC-COJ-01-023 Low	Nickel	mg/kg	12	1
GSC-COJ-01-023 Low	Potassium	mg/kg	1800	1
GSC-COJ-01-023 Low	Selenium	mg/kg	0.2	1
GSC-COJ-01-023 Low	Silver	mg/kg	0.07	1
GSC-COJ-01-023 Low	Sodium	mg/kg	300	1
GSC-COJ-01-023 Low	Thallium	mg/kg	0.1	1
GSC-COJ-01-023 Low	Vanadium	mg/kg	47	1
GSC-COJ-01-023 Low	Zinc	mg/kg	40	1
GSC-COJ-01-024 Mid.	Aluminum	mg/kg	5800	1
GSC-COJ-01-024 Mid.	Antimony	mg/kg	0.2	1
GSC-COJ-01-024 Mid.	Arsenic	mg/kg	2	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-024 Mid.	Barium	mg/kg	82.4	1
GSC-COJ-01-024 Mid.	Beryllium	mg/kg	0.15	1
GSC-COJ-01-024 Mid.	Cadmium	mg/kg	0.35	1
GSC-COJ-01-024 Mid.	Calcium	mg/kg	2600	1
GSC-COJ-01-024 Mid.	Chromium	mg/kg	16	1
GSC-COJ-01-024 Mid.	Cobalt	mg/kg	3.1	1
GSC-COJ-01-024 Mid.	Copper	mg/kg	6.8	1
GSC-COJ-01-024 Mid.	Iron	mg/kg	11600	1
GSC-COJ-01-024 Mid.	Lead	mg/kg	9.6	1
GSC-COJ-01-024 Mid.	Magnesium	mg/kg	3100	1
GSC-COJ-01-024 Mid.	Manganese	mg/kg	135	1
GSC-COJ-01-024 Mid.	Mercury	mg/kg	0.01	0
GSC-COJ-01-024 Mid.	Nickel	mg/kg	8	1
GSC-COJ-01-024 Mid.	Potassium	mg/kg	1300	1
GSC-COJ-01-024 Mid.	Selenium	mg/kg	0.2	0
GSC-COJ-01-024 Mid.	Silver	mg/kg	0.06	1
GSC-COJ-01-024 Mid.	Sodium	mg/kg	300	1
GSC-COJ-01-024 Mid.	Thallium	mg/kg	0.06	1
GSC-COJ-01-024 Mid.	Vanadium	mg/kg	28	1
GSC-COJ-01-024 Mid.	Zinc	mg/kg	50	1
GSC-COJ-01-025 Low	Aluminum	mg/kg	5700	1
GSC-COJ-01-025 Low	Antimony	mg/kg	0.25	1
GSC-COJ-01-025 Low	Arsenic	mg/kg	3	1
GSC-COJ-01-025 Low	Barium	mg/kg	78.2	1
GSC-COJ-01-025 Low	Beryllium	mg/kg	0.15	1
GSC-COJ-01-025 Low	Cadmium	mg/kg	0.39	1
GSC-COJ-01-025 Low	Calcium	mg/kg	3100	1
GSC-COJ-01-025 Low	Chromium	mg/kg	24	1
GSC-COJ-01-025 Low	Cobalt	mg/kg	6.1	1
GSC-COJ-01-025 Low	Copper	mg/kg	8.8	1
GSC-COJ-01-025 Low	Iron	mg/kg	15200	1
GSC-COJ-01-025 Low	Lead	mg/kg	10.6	1
GSC-COJ-01-025 Low	Magnesium	mg/kg	3400	1
GSC-COJ-01-025 Low	Manganese	mg/kg	150	1
GSC-COJ-01-025 Low	Mercury	mg/kg	0.01	0
GSC-COJ-01-025 Low	Nickel	mg/kg	11	1
GSC-COJ-01-025 Low	Potassium	mg/kg	1300	1
GSC-COJ-01-025 Low	Selenium	mg/kg	0.2	0
GSC-COJ-01-025 Low	Silver	mg/kg	0.07	1
GSC-COJ-01-025 Low	Sodium	mg/kg	300	1
GSC-COJ-01-025 Low	Thallium	mg/kg	0.08	1
GSC-COJ-01-025 Low	Vanadium	mg/kg	39	1
GSC-COJ-01-025 Low	Zinc	mg/kg	58	1
GSC-COJ-01-026 Mid.	Aluminum	mg/kg	10400	1
GSC-COJ-01-026 Mid.	Antimony	mg/kg	0.2	1
GSC-COJ-01-026 Mid.	Arsenic	mg/kg	3.3	1
GSC-COJ-01-026 Mid.	Barium	mg/kg	146	1
GSC-COJ-01-026 Mid.	Beryllium	mg/kg	0.15	1
GSC-COJ-01-026 Mid.	Cadmium	mg/kg	0.26	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-026 Mid.	Calcium	mg/kg	4600	1
GSC-COJ-01-026 Mid.	Chromium	mg/kg	29	1
GSC-COJ-01-026 Mid.	Cobalt	mg/kg	8.6	1
GSC-COJ-01-026 Mid.	Copper	mg/kg	14.2	1
GSC-COJ-01-026 Mid.	Iron	mg/kg	20500	1
GSC-COJ-01-026 Mid.	Lead	mg/kg	6.8	1
GSC-COJ-01-026 Mid.	Magnesium	mg/kg	7100	1
GSC-COJ-01-026 Mid.	Manganese	mg/kg	255	1
GSC-COJ-01-026 Mid.	Mercury	mg/kg	0.01	1
GSC-COJ-01-026 Mid.	Nickel	mg/kg	24.4	1
GSC-COJ-01-026 Mid.	Potassium	mg/kg	2400	1
GSC-COJ-01-026 Mid.	Selenium	mg/kg	0.2	0
GSC-COJ-01-026 Mid.	Silver	mg/kg	0.06	1
GSC-COJ-01-026 Mid.	Sodium	mg/kg	400	1
GSC-COJ-01-026 Mid.	Thallium	mg/kg	0.12	1
GSC-COJ-01-026 Mid.	Vanadium	mg/kg	53	1
GSC-COJ-01-026 Mid.	Zinc	mg/kg	50	1
GSC-COJ-01-027 Low	Aluminum	mg/kg	10400	1
GSC-COJ-01-027 Low	Antimony	mg/kg	0.2	1
GSC-COJ-01-027 Low	Arsenic	mg/kg	3	1
GSC-COJ-01-027 Low	Barium	mg/kg	163.6	1
GSC-COJ-01-027 Low	Beryllium	mg/kg	0.15	1
GSC-COJ-01-027 Low	Cadmium	mg/kg	0.56	1
GSC-COJ-01-027 Low	Calcium	mg/kg	4700	1
GSC-COJ-01-027 Low	Chromium	mg/kg	34	1
GSC-COJ-01-027 Low	Cobalt	mg/kg	8.2	1
GSC-COJ-01-027 Low	Copper	mg/kg	14.4	1
GSC-COJ-01-027 Low	Iron	mg/kg	19500	1
GSC-COJ-01-027 Low	Lead	mg/kg	9.8	1
GSC-COJ-01-027 Low	Magnesium	mg/kg	7500	1
GSC-COJ-01-027 Low	Manganese	mg/kg	260	1
GSC-COJ-01-027 Low	Mercury	mg/kg	0.01	1
GSC-COJ-01-027 Low	Nickel	mg/kg	29.6	1
GSC-COJ-01-027 Low	Potassium	mg/kg	2400	1
GSC-COJ-01-027 Low	Selenium	mg/kg	0.2	1
GSC-COJ-01-027 Low	Silver	mg/kg	0.05	1
GSC-COJ-01-027 Low	Sodium	mg/kg	400	1
GSC-COJ-01-027 Low	Thallium	mg/kg	0.14	1
GSC-COJ-01-027 Low	Vanadium	mg/kg	50	1
GSC-COJ-01-027 Low	Zinc	mg/kg	70	1
GSC-COJ-01-028 MD2	Aluminum	mg/kg	3900	1
GSC-COJ-01-028 MD2	Antimony	mg/kg	0.05	0
GSC-COJ-01-028 MD2	Arsenic	mg/kg	0.6	1
GSC-COJ-01-028 MD2	Barium	mg/kg	58.2	1
GSC-COJ-01-028 MD2	Beryllium	mg/kg	0.15	1
GSC-COJ-01-028 MD2	Cadmium	mg/kg	0.1	1
GSC-COJ-01-028 MD2	Calcium	mg/kg	3100	1
GSC-COJ-01-028 MD2	Chromium	mg/kg	10	1
GSC-COJ-01-028 MD2	Cobalt	mg/kg	3	1

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Sample ID	Analyte	Unit	Value	Detect
GSC-COJ-01-028 MD2	Copper	mg/kg	6	1
GSC-COJ-01-028 MD2	Iron	mg/kg	12100	1
GSC-COJ-01-028 MD2	Lead	mg/kg	4.6	1
GSC-COJ-01-028 MD2	Magnesium	mg/kg	2400	1
GSC-COJ-01-028 MD2	Manganese	mg/kg	240	1
GSC-COJ-01-028 MD2	Mercury	mg/kg	0.01	0
GSC-COJ-01-028 MD2	Nickel	mg/kg	7	1
GSC-COJ-01-028 MD2	Potassium	mg/kg	500	1
GSC-COJ-01-028 MD2	Selenium	mg/kg	0.2	0
GSC-COJ-01-028 MD2	Silver	mg/kg	0.07	1
GSC-COJ-01-028 MD2	Sodium	mg/kg	200	1
GSC-COJ-01-028 MD2	Thallium	mg/kg	0.02	1
GSC-COJ-01-028 MD2	Vanadium	mg/kg	21	1
GSC-COJ-01-028 MD2	Zinc	mg/kg	26	1
LALL DEF rep 1	Aluminum	mg/kg	2055	1
LALL DEF rep 1	Antimony	mg/kg	0.142	0
LALL DEF rep 1	Arsenic	mg/kg	0.815	1
LALL DEF rep 1	Barium	mg/kg	29.8	1
LALL DEF rep 1	Beryllium	mg/kg	0.095	1
LALL DEF rep 1	Cadmium	mg/kg	0.1335	1
LALL DEF rep 1	Calcium	mg/kg	1240	1
LALL DEF rep 1	Chromium	mg/kg	4.895	1
LALL DEF rep 1	Cobalt	mg/kg	1.2	1
LALL DEF rep 1	Copper	mg/kg	3.95	1
LALL DEF rep 1	Iron	mg/kg	4505	1
LALL DEF rep 1	Lead	mg/kg	8.05	1
LALL DEF rep 1	Magnesium	mg/kg	1023	1
LALL DEF rep 1	Manganese	mg/kg	47.3	1
LALL DEF rep 1	Mercury	mg/kg	0.0025	1
LALL DEF rep 1	Nickel	mg/kg	5.435	1
LALL DEF rep 1	Potassium	mg/kg	384.5	1
LALL DEF rep 1	Selenium	mg/kg	0.1	0
LALL DEF rep 1	Silver	mg/kg	0.0135	1
LALL DEF rep 1	Sodium	mg/kg	46	1
LALL DEF rep 1	Thallium	mg/kg	0.0315	1
LALL DEF rep 1	Vanadium	mg/kg	8.15	1
LALL DEF rep 1	Zinc	mg/kg	22.05	1
MJ4EX8	Aluminum	mg/kg	5630	1
MJ4EX8	Arsenic	mg/kg	1.8	1
MJ4EX8	Barium	mg/kg	56.5	1
MJ4EX8	Beryllium	mg/kg	0.34	1
MJ4EX8	Cadmium	mg/kg	0.29	1
MJ4EX8	Calcium	mg/kg	8620	1
MJ4EX8	Chromium	mg/kg	9.8	1
MJ4EX8	Cobalt	mg/kg	4.1	1
MJ4EX8	Copper	mg/kg	13.4	1
MJ4EX8	Iron	mg/kg	9350	1
MJ4EX8	Lead	mg/kg	9.6	1
MJ4EX8	Magnesium	mg/kg	3400	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4EX8	Manganese	mg/kg	171	1
MJ4EX8	Mercury	mg/kg	0.005	1
MJ4EX8	Nickel	mg/kg	8.1	1
MJ4EX8	Potassium	mg/kg	906	1
MJ4EX8	Silver	mg/kg	1.1	0
MJ4EX8	Sodium	mg/kg	100	1
MJ4EX8	Vanadium	mg/kg	19	1
MJ4EX8	Zinc	mg/kg	45.4	1
MJ4F01	Aluminum	mg/kg	3160	1
MJ4F01	Arsenic	mg/kg	1.2	1
MJ4F01	Barium	mg/kg	29.2	1
MJ4F01	Beryllium	mg/kg	0.28	1
MJ4F01	Cadmium	mg/kg	0.13	1
MJ4F01	Calcium	mg/kg	5970	1
MJ4F01	Chromium	mg/kg	5.5	1
MJ4F01	Cobalt	mg/kg	2.5	1
MJ4F01	Copper	mg/kg	4.5	1
MJ4F01	Iron	mg/kg	5550	1
MJ4F01	Lead	mg/kg	2.6	1
MJ4F01	Magnesium	mg/kg	2390	1
MJ4F01	Manganese	mg/kg	137	1
MJ4F01	Mercury	mg/kg	0.12	0
MJ4F01	Nickel	mg/kg	4.1	1
MJ4F01	Potassium	mg/kg	957	1
MJ4F01	Silver	mg/kg	1.1	0
MJ4F01	Sodium	mg/kg	72.6	1
MJ4F01	Vanadium	mg/kg	9.6	1
MJ4F01	Zinc	mg/kg	16	1
MJ4F02	Aluminum	mg/kg	7180	1
MJ4F02	Arsenic	mg/kg	4.8	1
MJ4F02	Barium	mg/kg	81.8	1
MJ4F02	Beryllium	mg/kg	0.62	1
MJ4F02	Cadmium	mg/kg	0.24	1
MJ4F02	Calcium	mg/kg	13100	1
MJ4F02	Chromium	mg/kg	19.4	1
MJ4F02	Cobalt	mg/kg	8.1	1
MJ4F02	Copper	mg/kg	15.9	1
MJ4F02	Iron	mg/kg	16300	1
MJ4F02	Lead	mg/kg	8.3	1
MJ4F02	Magnesium	mg/kg	5850	1
MJ4F02	Manganese	mg/kg	339	1
MJ4F02	Mercury	mg/kg	0.0065	1
MJ4F02	Nickel	mg/kg	18	1
MJ4F02	Potassium	mg/kg	1250	1
MJ4F02	Selenium	mg/kg	3.6	0
MJ4F02	Silver	mg/kg	1	0
MJ4F02	Sodium	mg/kg	154	1
MJ4F02	Vanadium	mg/kg	30	1
MJ4F02	Zinc	mg/kg	46.5	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4F07	Aluminum	mg/kg	6000	1
MJ4F07	Arsenic	mg/kg	6.4	1
MJ4F07	Barium	mg/kg	36.3	1
MJ4F07	Beryllium	mg/kg	0.32	1
MJ4F07	Cadmium	mg/kg	0.2	1
MJ4F07	Calcium	mg/kg	12400	1
MJ4F07	Chromium	mg/kg	14.8	1
MJ4F07	Cobalt	mg/kg	5.6	1
MJ4F07	Copper	mg/kg	14.7	1
MJ4F07	Iron	mg/kg	13500	1
MJ4F07	Lead	mg/kg	4.1	1
MJ4F07	Magnesium	mg/kg	5530	1
MJ4F07	Manganese	mg/kg	214	1
MJ4F07	Mercury	mg/kg	0.1	0
MJ4F07	Nickel	mg/kg	16.2	1
MJ4F07	Potassium	mg/kg	664	1
MJ4F07	Selenium	mg/kg	3.6	0
MJ4F07	Silver	mg/kg	1	0
MJ4F07	Sodium	mg/kg	117	1
MJ4F07	Vanadium	mg/kg	23.2	1
MJ4F07	Zinc	mg/kg	41.4	1
MJ4F09	Aluminum	mg/kg	7590	1
MJ4F09	Arsenic	mg/kg	5.4	1
MJ4F09	Barium	mg/kg	91	1
MJ4F09	Beryllium	mg/kg	0.66	1
MJ4F09	Cadmium	mg/kg	0.24	1
MJ4F09	Calcium	mg/kg	14500	1
MJ4F09	Chromium	mg/kg	21.5	1
MJ4F09	Cobalt	mg/kg	8.8	1
MJ4F09	Copper	mg/kg	18.4	1
MJ4F09	Iron	mg/kg	16900	1
MJ4F09	Lead	mg/kg	7.9	1
MJ4F09	Magnesium	mg/kg	6670	1
MJ4F09	Manganese	mg/kg	336	1
MJ4F09	Mercury	mg/kg	0.13	0
MJ4F09	Nickel	mg/kg	20.6	1
MJ4F09	Potassium	mg/kg	1500	1
MJ4F09	Selenium	mg/kg	4.2	0
MJ4F09	Silver	mg/kg	1.2	0
MJ4F09	Sodium	mg/kg	156	1
MJ4F09	Vanadium	mg/kg	29.7	1
MJ4F09	Zinc	mg/kg	52.3	1
MJ4F11	Aluminum	mg/kg	6440	1
MJ4F11	Arsenic	mg/kg	4.6	1
MJ4F11	Barium	mg/kg	82	1
MJ4F11	Beryllium	mg/kg	0.59	1
MJ4F11	Cadmium	mg/kg	0.23	1
MJ4F11	Calcium	mg/kg	12100	1
MJ4F11	Chromium	mg/kg	18.1	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4F11	Cobalt	mg/kg	8.2	1
MJ4F11	Copper	mg/kg	16.1	1
MJ4F11	Iron	mg/kg	14900	1
MJ4F11	Lead	mg/kg	7.7	1
MJ4F11	Magnesium	mg/kg	5490	1
MJ4F11	Manganese	mg/kg	329	1
MJ4F11	Mercury	mg/kg	0.13	0
MJ4F11	Nickel	mg/kg	17.8	1
MJ4F11	Potassium	mg/kg	1260	1
MJ4F11	Selenium	mg/kg	4.2	0
MJ4F11	Silver	mg/kg	1.2	0
MJ4F11	Sodium	mg/kg	125	1
MJ4F11	Vanadium	mg/kg	27.5	1
MJ4F11	Zinc	mg/kg	45.8	1
MJ4F20	Aluminum	mg/kg	5400	1
MJ4F20	Antimony	mg/kg	0.37	0
MJ4F20	Arsenic	mg/kg	1.4	1
MJ4F20	Barium	mg/kg	48.3	1
MJ4F20	Beryllium	mg/kg	0.36	1
MJ4F20	Cadmium	mg/kg	0.11	1
MJ4F20	Calcium	mg/kg	2220	1
MJ4F20	Chromium	mg/kg	10.6	1
MJ4F20	Cobalt	mg/kg	3.8	1
MJ4F20	Copper	mg/kg	9.9	1
MJ4F20	Iron	mg/kg	11300	1
MJ4F20	Lead	mg/kg	5.2	1
MJ4F20	Magnesium	mg/kg	3230	1
MJ4F20	Manganese	mg/kg	259	1
MJ4F20	Mercury	mg/kg	0.11	0
MJ4F20	Nickel	mg/kg	8.3	1
MJ4F20	Potassium	mg/kg	558	1
MJ4F20	Silver	mg/kg	1	0
MJ4F20	Sodium	mg/kg	90.5	0
MJ4F20	Vanadium	mg/kg	26.8	1
MJ4F20	Zinc	mg/kg	32.9	1
MJ4F21	Aluminum	mg/kg	4600	1
MJ4F21	Antimony	mg/kg	0.61	0
MJ4F21	Arsenic	mg/kg	1.5	1
MJ4F21	Barium	mg/kg	43.6	1
MJ4F21	Beryllium	mg/kg	0.32	1
MJ4F21	Cadmium	mg/kg	0.18	1
MJ4F21	Calcium	mg/kg	1900	1
MJ4F21	Chromium	mg/kg	9.1	1
MJ4F21	Cobalt	mg/kg	3.1	1
MJ4F21	Copper	mg/kg	10.7	1
MJ4F21	Iron	mg/kg	8640	1
MJ4F21	Lead	mg/kg	6	1
MJ4F21	Magnesium	mg/kg	2560	1
MJ4F21	Manganese	mg/kg	125	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4F21	Mercury	mg/kg	0.11	0
MJ4F21	Nickel	mg/kg	7.4	1
MJ4F21	Potassium	mg/kg	585	1
MJ4F21	Silver	mg/kg	0.91	0
MJ4F21	Sodium	mg/kg	96.9	0
MJ4F21	Vanadium	mg/kg	16.9	1
MJ4F21	Zinc	mg/kg	36	1
MJ4F23	Aluminum	mg/kg	5740	1
MJ4F23	Antimony	mg/kg	0.95	0
MJ4F23	Arsenic	mg/kg	1	1
MJ4F23	Barium	mg/kg	40.3	1
MJ4F23	Beryllium	mg/kg	0.38	1
MJ4F23	Cadmium	mg/kg	0.15	1
MJ4F23	Calcium	mg/kg	2570	1
MJ4F23	Chromium	mg/kg	10.1	1
MJ4F23	Cobalt	mg/kg	3.5	1
MJ4F23	Copper	mg/kg	10	1
MJ4F23	Iron	mg/kg	9930	1
MJ4F23	Lead	mg/kg	7.3	1
MJ4F23	Magnesium	mg/kg	3100	1
MJ4F23	Manganese	mg/kg	147	1
MJ4F23	Mercury	mg/kg	0.1	0
MJ4F23	Nickel	mg/kg	7.8	1
MJ4F23	Potassium	mg/kg	657	1
MJ4F23	Silver	mg/kg	0.83	0
MJ4F23	Sodium	mg/kg	124	0
MJ4F23	Vanadium	mg/kg	20.9	1
MJ4F23	Zinc	mg/kg	42	1
MJ4F24	Aluminum	mg/kg	4910	1
MJ4F24	Arsenic	mg/kg	1.3	1
MJ4F24	Barium	mg/kg	40.3	1
MJ4F24	Beryllium	mg/kg	0.37	1
MJ4F24	Cadmium	mg/kg	0.23	1
MJ4F24	Calcium	mg/kg	2460	1
MJ4F24	Chromium	mg/kg	9.6	1
MJ4F24	Cobalt	mg/kg	3.5	1
MJ4F24	Copper	mg/kg	9.2	1
MJ4F24	Iron	mg/kg	9320	1
MJ4F24	Lead	mg/kg	6.8	1
MJ4F24	Magnesium	mg/kg	2860	1
MJ4F24	Manganese	mg/kg	161	1
MJ4F24	Mercury	mg/kg	0.11	0
MJ4F24	Nickel	mg/kg	8.3	1
MJ4F24	Potassium	mg/kg	585	1
MJ4F24	Silver	mg/kg	1.1	0
MJ4F24	Sodium	mg/kg	109	0
MJ4F24	Vanadium	mg/kg	19.7	1
MJ4F24	Zinc	mg/kg	39.9	1
MJ4F25	Aluminum	mg/kg	4760	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4F25	Antimony	mg/kg	0.3	0
MJ4F25	Arsenic	mg/kg	1.5	1
MJ4F25	Barium	mg/kg	38.4	1
MJ4F25	Beryllium	mg/kg	0.36	1
MJ4F25	Cadmium	mg/kg	0.11	1
MJ4F25	Calcium	mg/kg	2380	1
MJ4F25	Chromium	mg/kg	9.6	1
MJ4F25	Cobalt	mg/kg	3.8	1
MJ4F25	Copper	mg/kg	9.3	1
MJ4F25	Iron	mg/kg	9690	1
MJ4F25	Lead	mg/kg	4	1
MJ4F25	Magnesium	mg/kg	2690	1
MJ4F25	Manganese	mg/kg	145	1
MJ4F25	Mercury	mg/kg	0.1	0
MJ4F25	Nickel	mg/kg	7.2	1
MJ4F25	Potassium	mg/kg	631	1
MJ4F25	Silver	mg/kg	0.8	0
MJ4F25	Sodium	mg/kg	111	0
MJ4F25	Vanadium	mg/kg	20.5	1
MJ4F25	Zinc	mg/kg	26.7	1
MJ4F26	Aluminum	mg/kg	16000	1
MJ4F26	Antimony	mg/kg	1.3	0
MJ4F26	Arsenic	mg/kg	2.3	1
MJ4F26	Barium	mg/kg	169	1
MJ4F26	Beryllium	mg/kg	1.4	1
MJ4F26	Cadmium	mg/kg	0.36	1
MJ4F26	Calcium	mg/kg	16200	1
MJ4F26	Chromium	mg/kg	36.9	1
MJ4F26	Cobalt	mg/kg	12.7	1
MJ4F26	Copper	mg/kg	26.7	1
MJ4F26	Iron	mg/kg	26000	1
MJ4F26	Lead	mg/kg	10.7	1
MJ4F26	Magnesium	mg/kg	9960	1
MJ4F26	Manganese	mg/kg	605	1
MJ4F26	Mercury	mg/kg	0.0068	1
MJ4F26	Nickel	mg/kg	29.9	1
MJ4F26	Potassium	mg/kg	3160	1
MJ4F26	Silver	mg/kg	1.2	0
MJ4F26	Sodium	mg/kg	437	1
MJ4F26	Vanadium	mg/kg	49.7	1
MJ4F26	Zinc	mg/kg	74.3	1
MJ4F29	Aluminum	mg/kg	10100	1
MJ4F29	Antimony	mg/kg	0.31	0
MJ4F29	Arsenic	mg/kg	1.8	1
MJ4F29	Barium	mg/kg	106	1
MJ4F29	Beryllium	mg/kg	0.83	1
MJ4F29	Cadmium	mg/kg	0.22	1
MJ4F29	Calcium	mg/kg	7890	1
MJ4F29	Chromium	mg/kg	21.6	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4F29	Cobalt	mg/kg	7.5	1
MJ4F29	Copper	mg/kg	16.1	1
MJ4F29	Iron	mg/kg	16200	1
MJ4F29	Lead	mg/kg	8.3	1
MJ4F29	Magnesium	mg/kg	5970	1
MJ4F29	Manganese	mg/kg	390	1
MJ4F29	Mercury	mg/kg	0.0069	1
MJ4F29	Nickel	mg/kg	18.1	1
MJ4F29	Potassium	mg/kg	1750	1
MJ4F29	Silver	mg/kg	0.99	0
MJ4F29	Sodium	mg/kg	251	1
MJ4F29	Vanadium	mg/kg	31.3	1
MJ4F29	Zinc	mg/kg	51.6	1
MJ4F31	Aluminum	mg/kg	12200	1
MJ4F31	Antimony	mg/kg	0.4	0
MJ4F31	Arsenic	mg/kg	3.3	1
MJ4F31	Barium	mg/kg	150	1
MJ4F31	Beryllium	mg/kg	1	1
MJ4F31	Cadmium	mg/kg	0.36	1
MJ4F31	Calcium	mg/kg	11000	1
MJ4F31	Chromium	mg/kg	26.2	1
MJ4F31	Cobalt	mg/kg	10.7	1
MJ4F31	Copper	mg/kg	22.3	1
MJ4F31	Iron	mg/kg	19400	1
MJ4F31	Lead	mg/kg	12.7	1
MJ4F31	Magnesium	mg/kg	7510	1
MJ4F31	Manganese	mg/kg	529	1
MJ4F31	Mercury	mg/kg	0.0063	1
MJ4F31	Nickel	mg/kg	24.9	1
MJ4F31	Potassium	mg/kg	2410	1
MJ4F31	Silver	mg/kg	0.98	0
MJ4F31	Sodium	mg/kg	289	1
MJ4F31	Vanadium	mg/kg	33.8	1
MJ4F31	Zinc	mg/kg	68.9	1
MJ4F40	Aluminum	mg/kg	5880	1
MJ4F40	Antimony	mg/kg	0.63	0
MJ4F40	Arsenic	mg/kg	3.4	1
MJ4F40	Barium	mg/kg	48.8	1
MJ4F40	Beryllium	mg/kg	0.32	1
MJ4F40	Cadmium	mg/kg	0.06	1
MJ4F40	Calcium	mg/kg	9870	1
MJ4F40	Chromium	mg/kg	12.8	1
MJ4F40	Cobalt	mg/kg	4.6	1
MJ4F40	Copper	mg/kg	13.4	1
MJ4F40	Iron	mg/kg	12200	1
MJ4F40	Lead	mg/kg	3.8	1
MJ4F40	Magnesium	mg/kg	4310	1
MJ4F40	Manganese	mg/kg	265	1
MJ4F40	Mercury	mg/kg	0.11	0

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4F40	Nickel	mg/kg	12.7	1
MJ4F40	Potassium	mg/kg	462	1
MJ4F40	Silver	mg/kg	0.98	0
MJ4F40	Sodium	mg/kg	120	1
MJ4F40	Vanadium	mg/kg	19.7	1
MJ4F40	Zinc	mg/kg	34.2	1
MJ4F42	Aluminum	mg/kg	6510	1
MJ4F42	Antimony	mg/kg	0.71	0
MJ4F42	Arsenic	mg/kg	2	1
MJ4F42	Barium	mg/kg	71.5	1
MJ4F42	Beryllium	mg/kg	0.56	1
MJ4F42	Cadmium	mg/kg	0.057	1
MJ4F42	Calcium	mg/kg	2860	1
MJ4F42	Chromium	mg/kg	13	1
MJ4F42	Cobalt	mg/kg	7	1
MJ4F42	Copper	mg/kg	10	1
MJ4F42	Iron	mg/kg	11600	1
MJ4F42	Lead	mg/kg	6.6	1
MJ4F42	Magnesium	mg/kg	3630	1
MJ4F42	Manganese	mg/kg	291	1
MJ4F42	Mercury	mg/kg	0.1	0
MJ4F42	Nickel	mg/kg	12.3	1
MJ4F42	Potassium	mg/kg	1020	1
MJ4F42	Silver	mg/kg	0.97	0
MJ4F42	Sodium	mg/kg	160	1
MJ4F42	Vanadium	mg/kg	23.2	1
MJ4F42	Zinc	mg/kg	36.4	1
MJ4F51	Aluminum	mg/kg	6370	1
MJ4F51	Antimony	mg/kg	0.95	0
MJ4F51	Arsenic	mg/kg	2.6	1
MJ4F51	Barium	mg/kg	56.4	1
MJ4F51	Beryllium	mg/kg	0.52	1
MJ4F51	Cadmium	mg/kg	0.45	1
MJ4F51	Calcium	mg/kg	3050	1
MJ4F51	Chromium	mg/kg	12.7	1
MJ4F51	Cobalt	mg/kg	4.9	1
MJ4F51	Copper	mg/kg	13.8	1
MJ4F51	Iron	mg/kg	12000	1
MJ4F51	Lead	mg/kg	21.9	1
MJ4F51	Magnesium	mg/kg	3980	1
MJ4F51	Manganese	mg/kg	260	1
MJ4F51	Mercury	mg/kg	0.03	1
MJ4F51	Nickel	mg/kg	10.9	1
MJ4F51	Potassium	mg/kg	775	1
MJ4F51	Silver	mg/kg	1.1	0
MJ4F51	Sodium	mg/kg	155	1
MJ4F51	Vanadium	mg/kg	21.7	1
MJ4F51	Zinc	mg/kg	97.1	1
MJ4F56	Aluminum	mg/kg	10400	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4F56	Antimony	mg/kg	2	1
MJ4F56	Arsenic	mg/kg	3.9	1
MJ4F56	Barium	mg/kg	124	1
MJ4F56	Beryllium	mg/kg	1	1
MJ4F56	Cadmium	mg/kg	0.69	1
MJ4F56	Calcium	mg/kg	6400	1
MJ4F56	Chromium	mg/kg	22.8	1
MJ4F56	Cobalt	mg/kg	8.9	1
MJ4F56	Copper	mg/kg	25	1
MJ4F56	Iron	mg/kg	18800	1
MJ4F56	Lead	mg/kg	28	1
MJ4F56	Magnesium	mg/kg	6200	1
MJ4F56	Manganese	mg/kg	469	1
MJ4F56	Mercury	mg/kg	0.093	1
MJ4F56	Nickel	mg/kg	19.3	1
MJ4F56	Potassium	mg/kg	1860	1
MJ4F56	Sodium	mg/kg	290	1
MJ4F56	Vanadium	mg/kg	32.3	1
MJ4F56	Zinc	mg/kg	127	1
MJ4F57	Aluminum	mg/kg	6210	1
MJ4F57	Arsenic	mg/kg	2.3	1
MJ4F57	Barium	mg/kg	75.4	1
MJ4F57	Beryllium	mg/kg	0.66	1
MJ4F57	Cadmium	mg/kg	0.14	1
MJ4F57	Calcium	mg/kg	18300	1
MJ4F57	Chromium	mg/kg	15.5	1
MJ4F57	Cobalt	mg/kg	6.1	1
MJ4F57	Copper	mg/kg	11.6	1
MJ4F57	Iron	mg/kg	13100	1
MJ4F57	Lead	mg/kg	4.6	1
MJ4F57	Magnesium	mg/kg	4700	1
MJ4F57	Manganese	mg/kg	258	1
MJ4F57	Mercury	mg/kg	0.11	0
MJ4F57	Nickel	mg/kg	12.6	1
MJ4F57	Potassium	mg/kg	1280	1
MJ4F57	Silver	mg/kg	1.1	0
MJ4F57	Sodium	mg/kg	183	1
MJ4F57	Vanadium	mg/kg	25.2	1
MJ4F57	Zinc	mg/kg	36.9	1
MJ4F62	Aluminum	mg/kg	7310	1
MJ4F62	Arsenic	mg/kg	7.4	1
MJ4F62	Barium	mg/kg	40.4	1
MJ4F62	Beryllium	mg/kg	0.47	1
MJ4F62	Cadmium	mg/kg	0.12	1
MJ4F62	Calcium	mg/kg	11000	1
MJ4F62	Chromium	mg/kg	20.3	1
MJ4F62	Cobalt	mg/kg	7.3	1
MJ4F62	Copper	mg/kg	19.8	1
MJ4F62	Iron	mg/kg	16800	1

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Sample ID	Analyte	Unit	Value	Detect
MJ4F62	Lead	mg/kg	7.9	1
MJ4F62	Magnesium	mg/kg	5360	1
MJ4F62	Manganese	mg/kg	245	1
MJ4F62	Mercury	mg/kg	0.11	0
MJ4F62	Nickel	mg/kg	22.2	1
MJ4F62	Potassium	mg/kg	599	1
MJ4F62	Silver	mg/kg	1	0
MJ4F62	Sodium	mg/kg	135	1
MJ4F62	Vanadium	mg/kg	22	1
MJ4F62	Zinc	mg/kg	41.6	1
MJ4F65	Aluminum	mg/kg	5810	1
MJ4F65	Arsenic	mg/kg	1.9	1
MJ4F65	Barium	mg/kg	53.3	1
MJ4F65	Beryllium	mg/kg	0.44	1
MJ4F65	Cadmium	mg/kg	0.11	1
MJ4F65	Calcium	mg/kg	1700	1
MJ4F65	Chromium	mg/kg	13.2	1
MJ4F65	Cobalt	mg/kg	4.1	1
MJ4F65	Copper	mg/kg	9	1
MJ4F65	Iron	mg/kg	9800	1
MJ4F65	Lead	mg/kg	5.4	1
MJ4F65	Magnesium	mg/kg	2590	1
MJ4F65	Manganese	mg/kg	157	1
MJ4F65	Mercury	mg/kg	0.11	0
MJ4F65	Nickel	mg/kg	10.2	1
MJ4F65	Potassium	mg/kg	719	1
MJ4F65	Silver	mg/kg	1.1	0
MJ4F65	Sodium	mg/kg	97.8	1
MJ4F65	Vanadium	mg/kg	16.2	1
MJ4F65	Zinc	mg/kg	33	1
MJ4F69	Aluminum	mg/kg	12200	1
MJ4F69	Antimony	mg/kg	1.5	1
MJ4F69	Arsenic	mg/kg	5.3	1
MJ4F69	Barium	mg/kg	117	1
MJ4F69	Beryllium	mg/kg	0.9	1
MJ4F69	Cadmium	mg/kg	0.74	1
MJ4F69	Calcium	mg/kg	4120	1
MJ4F69	Chromium	mg/kg	24.2	1
MJ4F69	Cobalt	mg/kg	10.4	1
MJ4F69	Copper	mg/kg	20	1
MJ4F69	Iron	mg/kg	21100	1
MJ4F69	Lead	mg/kg	19.7	1
MJ4F69	Magnesium	mg/kg	4970	1
MJ4F69	Manganese	mg/kg	383	1
MJ4F69	Mercury	mg/kg	0.031	1
MJ4F69	Nickel	mg/kg	21.1	1
MJ4F69	Potassium	mg/kg	2020	1
MJ4F69	Silver	mg/kg	1.2	0
MJ4F69	Sodium	mg/kg	173	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4F69	Vanadium	mg/kg	32.6	1
MJ4F69	Zinc	mg/kg	118	1
MJ4F71	Aluminum	mg/kg	3560	1
MJ4F71	Arsenic	mg/kg	2.6	0
MJ4F71	Barium	mg/kg	30.4	1
MJ4F71	Beryllium	mg/kg	0.25	1
MJ4F71	Cadmium	mg/kg	0.14	1
MJ4F71	Calcium	mg/kg	3300	1
MJ4F71	Chromium	mg/kg	8.4	1
MJ4F71	Cobalt	mg/kg	3.3	1
MJ4F71	Copper	mg/kg	7.6	1
MJ4F71	Iron	mg/kg	7690	1
MJ4F71	Lead	mg/kg	3	1
MJ4F71	Magnesium	mg/kg	2560	1
MJ4F71	Manganese	mg/kg	126	1
MJ4F71	Mercury	mg/kg	0.1	0
MJ4F71	Nickel	mg/kg	7.7	1
MJ4F71	Potassium	mg/kg	454	1
MJ4F71	Silver	mg/kg	1	0
MJ4F71	Sodium	mg/kg	70	1
MJ4F71	Vanadium	mg/kg	13.3	1
MJ4F71	Zinc	mg/kg	25.9	1
MJ4F81	Aluminum	mg/kg	8080	1
MJ4F81	Arsenic	mg/kg	4.2	1
MJ4F81	Barium	mg/kg	71.9	1
MJ4F81	Beryllium	mg/kg	0.59	1
MJ4F81	Cadmium	mg/kg	0.12	1
MJ4F81	Calcium	mg/kg	6380	1
MJ4F81	Chromium	mg/kg	22.9	1
MJ4F81	Cobalt	mg/kg	7.8	1
MJ4F81	Copper	mg/kg	18.4	1
MJ4F81	Iron	mg/kg	17900	1
MJ4F81	Lead	mg/kg	6	1
MJ4F81	Magnesium	mg/kg	5290	1
MJ4F81	Manganese	mg/kg	333	1
MJ4F81	Mercury	mg/kg	0.017	1
MJ4F81	Nickel	mg/kg	20.1	1
MJ4F81	Potassium	mg/kg	930	1
MJ4F81	Silver	mg/kg	1.1	0
MJ4F81	Sodium	mg/kg	146	1
MJ4F81	Vanadium	mg/kg	31	1
MJ4F81	Zinc	mg/kg	40.3	1
MJ4F82	Aluminum	mg/kg	7590	1
MJ4F82	Arsenic	mg/kg	3.3	1
MJ4F82	Barium	mg/kg	63.1	1
MJ4F82	Beryllium	mg/kg	0.57	1
MJ4F82	Cadmium	mg/kg	0.35	1
MJ4F82	Calcium	mg/kg	4070	1
MJ4F82	Chromium	mg/kg	17.7	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4F82	Cobalt	mg/kg	6.5	1
MJ4F82	Copper	mg/kg	12.1	1
MJ4F82	Iron	mg/kg	15300	1
MJ4F82	Lead	mg/kg	14.5	1
MJ4F82	Magnesium	mg/kg	3950	1
MJ4F82	Manganese	mg/kg	204	1
MJ4F82	Mercury	mg/kg	0.013	1
MJ4F82	Nickel	mg/kg	15.9	1
MJ4F82	Potassium	mg/kg	1010	1
MJ4F82	Silver	mg/kg	1.1	0
MJ4F82	Sodium	mg/kg	119	1
MJ4F82	Vanadium	mg/kg	24.8	1
MJ4F82	Zinc	mg/kg	63.8	1
MJ4F90	Aluminum	mg/kg	11600	1
MJ4F90	Antimony	mg/kg	1.3	1
MJ4F90	Arsenic	mg/kg	4.2	1
MJ4F90	Barium	mg/kg	114	1
MJ4F90	Beryllium	mg/kg	0.72	1
MJ4F90	Cadmium	mg/kg	0.29	1
MJ4F90	Calcium	mg/kg	2360	1
MJ4F90	Chromium	mg/kg	13.1	1
MJ4F90	Cobalt	mg/kg	6.2	1
MJ4F90	Copper	mg/kg	11.2	1
MJ4F90	Iron	mg/kg	16300	1
MJ4F90	Lead	mg/kg	9.5	1
MJ4F90	Magnesium	mg/kg	3610	1
MJ4F90	Manganese	mg/kg	254	1
MJ4F90	Mercury	mg/kg	0.007	1
MJ4F90	Nickel	mg/kg	10.8	1
MJ4F90	Potassium	mg/kg	1640	1
MJ4F90	Silver	mg/kg	1.1	0
MJ4F90	Sodium	mg/kg	111	1
MJ4F90	Vanadium	mg/kg	21.1	1
MJ4F90	Zinc	mg/kg	94.7	1
MJ4F98	Aluminum	mg/kg	9170	1
MJ4F98	Antimony	mg/kg	1	0
MJ4F98	Arsenic	mg/kg	2.9	1
MJ4F98	Barium	mg/kg	91.2	1
MJ4F98	Beryllium	mg/kg	0.64	1
MJ4F98	Cadmium	mg/kg	0.6	1
MJ4F98	Calcium	mg/kg	2320	1
MJ4F98	Chromium	mg/kg	12.6	1
MJ4F98	Cobalt	mg/kg	5.6	1
MJ4F98	Copper	mg/kg	10.8	1
MJ4F98	Iron	mg/kg	13900	1
MJ4F98	Lead	mg/kg	22.1	1
MJ4F98	Magnesium	mg/kg	3350	1
MJ4F98	Manganese	mg/kg	186	1
MJ4F98	Mercury	mg/kg	0.037	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4F98	Nickel	mg/kg	10.6	1
MJ4F98	Potassium	mg/kg	1520	1
MJ4F98	Silver	mg/kg	1.2	0
MJ4F98	Sodium	mg/kg	117	1
MJ4F98	Vanadium	mg/kg	18	1
MJ4F98	Zinc	mg/kg	139	1
MJ4F99	Aluminum	mg/kg	7780	1
MJ4F99	Antimony	mg/kg	1.2	0
MJ4F99	Arsenic	mg/kg	2.4	1
MJ4F99	Barium	mg/kg	72.9	1
MJ4F99	Beryllium	mg/kg	0.74	1
MJ4F99	Cadmium	mg/kg	0.26	1
MJ4F99	Calcium	mg/kg	3270	1
MJ4F99	Chromium	mg/kg	16.6	1
MJ4F99	Cobalt	mg/kg	6	1
MJ4F99	Copper	mg/kg	11.1	1
MJ4F99	Iron	mg/kg	14600	1
MJ4F99	Lead	mg/kg	9.6	1
MJ4F99	Magnesium	mg/kg	3130	1
MJ4F99	Manganese	mg/kg	183	1
MJ4F99	Mercury	mg/kg	0.007	1
MJ4F99	Nickel	mg/kg	12.3	1
MJ4F99	Potassium	mg/kg	1440	1
MJ4F99	Silver	mg/kg	1.1	0
MJ4F99	Sodium	mg/kg	127	1
MJ4F99	Vanadium	mg/kg	26.1	1
MJ4F99	Zinc	mg/kg	58.5	1
MJ4FA0	Aluminum	mg/kg	6270	1
MJ4FA0	Antimony	mg/kg	0.69	0
MJ4FA0	Arsenic	mg/kg	3.8	1
MJ4FA0	Barium	mg/kg	43.2	1
MJ4FA0	Beryllium	mg/kg	0.37	1
MJ4FA0	Cadmium	mg/kg	0.077	1
MJ4FA0	Calcium	mg/kg	10100	1
MJ4FA0	Chromium	mg/kg	17.3	1
MJ4FA0	Cobalt	mg/kg	5.6	1
MJ4FA0	Copper	mg/kg	12.8	1
MJ4FA0	Iron	mg/kg	14200	1
MJ4FA0	Lead	mg/kg	4.9	1
MJ4FA0	Magnesium	mg/kg	4790	1
MJ4FA0	Manganese	mg/kg	219	1
MJ4FA0	Mercury	mg/kg	0.005	1
MJ4FA0	Nickel	mg/kg	18.4	1
MJ4FA0	Potassium	mg/kg	663	1
MJ4FA0	Silver	mg/kg	0.96	0
MJ4FA0	Sodium	mg/kg	70.4	1
MJ4FA0	Vanadium	mg/kg	19.3	1
MJ4FA0	Zinc	mg/kg	36.2	1
MJ4FA2	Aluminum	mg/kg	7740	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4FA2	Antimony	mg/kg	0.84	0
MJ4FA2	Arsenic	mg/kg	16.3	1
MJ4FA2	Barium	mg/kg	69.3	1
MJ4FA2	Beryllium	mg/kg	0.65	1
MJ4FA2	Cadmium	mg/kg	0.2	1
MJ4FA2	Calcium	mg/kg	9910	1
MJ4FA2	Chromium	mg/kg	24.8	1
MJ4FA2	Cobalt	mg/kg	10.1	1
MJ4FA2	Copper	mg/kg	19.3	1
MJ4FA2	Iron	mg/kg	19500	1
MJ4FA2	Lead	mg/kg	11.1	1
MJ4FA2	Magnesium	mg/kg	5920	1
MJ4FA2	Manganese	mg/kg	353	1
MJ4FA2	Mercury	mg/kg	0.014	1
MJ4FA2	Nickel	mg/kg	23	1
MJ4FA2	Potassium	mg/kg	1550	1
MJ4FA2	Silver	mg/kg	1.1	0
MJ4FA2	Sodium	mg/kg	115	1
MJ4FA2	Vanadium	mg/kg	25.9	1
MJ4FA2	Zinc	mg/kg	62	1
MJ4FB3	Aluminum	mg/kg	7520	1
MJ4FB3	Antimony	mg/kg	1.1	1
MJ4FB3	Arsenic	mg/kg	3.6	1
MJ4FB3	Barium	mg/kg	80.3	1
MJ4FB3	Beryllium	mg/kg	0.59	1
MJ4FB3	Cadmium	mg/kg	0.63	1
MJ4FB3	Calcium	mg/kg	6050	1
MJ4FB3	Chromium	mg/kg	17.7	1
MJ4FB3	Cobalt	mg/kg	6.7	1
MJ4FB3	Copper	mg/kg	16.1	1
MJ4FB3	Iron	mg/kg	15200	1
MJ4FB3	Lead	mg/kg	15.8	1
MJ4FB3	Magnesium	mg/kg	4520	1
MJ4FB3	Manganese	mg/kg	194	1
MJ4FB3	Mercury	mg/kg	0.03	1
MJ4FB3	Nickel	mg/kg	15.9	1
MJ4FB3	Potassium	mg/kg	1210	1
MJ4FB3	Silver	mg/kg	1.1	0
MJ4FB3	Sodium	mg/kg	147	1
MJ4FB3	Vanadium	mg/kg	26.6	1
MJ4FB3	Zinc	mg/kg	90.3	1
MJ4FB9	Aluminum	mg/kg	14500	1
MJ4FB9	Antimony	mg/kg	1.8	1
MJ4FB9	Arsenic	mg/kg	3.8	1
MJ4FB9	Barium	mg/kg	126	1
MJ4FB9	Beryllium	mg/kg	1.4	1
MJ4FB9	Cadmium	mg/kg	0.23	1
MJ4FB9	Calcium	mg/kg	7120	1
MJ4FB9	Chromium	mg/kg	32.2	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4FB9	Cobalt	mg/kg	10.5	1
MJ4FB9	Copper	mg/kg	28.6	1
MJ4FB9	Iron	mg/kg	26500	1
MJ4FB9	Lead	mg/kg	11.4	1
MJ4FB9	Magnesium	mg/kg	7320	1
MJ4FB9	Manganese	mg/kg	377	1
MJ4FB9	Mercury	mg/kg	0.035	1
MJ4FB9	Nickel	mg/kg	22.2	1
MJ4FB9	Potassium	mg/kg	1570	1
MJ4FB9	Sodium	mg/kg	225	1
MJ4FB9	Vanadium	mg/kg	48.2	1
MJ4FB9	Zinc	mg/kg	78.4	1
MJ4FC3	Aluminum	mg/kg	5100	1
MJ4FC3	Arsenic	mg/kg	2.3	0
MJ4FC3	Barium	mg/kg	50.2	1
MJ4FC3	Beryllium	mg/kg	0.46	1
MJ4FC3	Cadmium	mg/kg	0.14	0
MJ4FC3	Calcium	mg/kg	2610	1
MJ4FC3	Chromium	mg/kg	16.1	1
MJ4FC3	Cobalt	mg/kg	4.8	1
MJ4FC3	Copper	mg/kg	8.9	1
MJ4FC3	Iron	mg/kg	11700	1
MJ4FC3	Lead	mg/kg	6.4	1
MJ4FC3	Magnesium	mg/kg	3950	1
MJ4FC3	Manganese	mg/kg	186	1
MJ4FC3	Mercury	mg/kg	0.026	1
MJ4FC3	Nickel	mg/kg	14.5	1
MJ4FC3	Potassium	mg/kg	761	1
MJ4FC3	Silver	mg/kg	1.2	0
MJ4FC3	Sodium	mg/kg	109	1
MJ4FC3	Vanadium	mg/kg	22.5	1
MJ4FC3	Zinc	mg/kg	37.2	1
MJ4FD3	Aluminum	mg/kg	7160	1
MJ4FD3	Arsenic	mg/kg	5.9	1
MJ4FD3	Barium	mg/kg	61	1
MJ4FD3	Beryllium	mg/kg	0.47	1
MJ4FD3	Cadmium	mg/kg	0.064	0
MJ4FD3	Calcium	mg/kg	11500	1
MJ4FD3	Chromium	mg/kg	9.6	1
MJ4FD3	Cobalt	mg/kg	14.2	1
MJ4FD3	Copper	mg/kg	11.5	1
MJ4FD3	Iron	mg/kg	14200	1
MJ4FD3	Lead	mg/kg	6.2	1
MJ4FD3	Magnesium	mg/kg	6530	1
MJ4FD3	Manganese	mg/kg	334	1
MJ4FD3	Mercury	mg/kg	0.1	0
MJ4FD3	Nickel	mg/kg	8.5	1
MJ4FD3	Potassium	mg/kg	1350	1
MJ4FD3	Silver	mg/kg	0.93	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FD3	Sodium	mg/kg	97.6	1
MJ4FD3	Vanadium	mg/kg	13.4	1
MJ4FD3	Zinc	mg/kg	35.5	1
MJ4FD4	Aluminum	mg/kg	6900	1
MJ4FD4	Arsenic	mg/kg	6.7	1
MJ4FD4	Barium	mg/kg	33.6	1
MJ4FD4	Beryllium	mg/kg	0.43	1
MJ4FD4	Cadmium	mg/kg	0.058	0
MJ4FD4	Calcium	mg/kg	15100	1
MJ4FD4	Chromium	mg/kg	9.1	1
MJ4FD4	Cobalt	mg/kg	3.5	1
MJ4FD4	Copper	mg/kg	10	1
MJ4FD4	Iron	mg/kg	12600	1
MJ4FD4	Lead	mg/kg	4.7	1
MJ4FD4	Magnesium	mg/kg	6240	1
MJ4FD4	Manganese	mg/kg	224	1
MJ4FD4	Mercury	mg/kg	0.11	0
MJ4FD4	Nickel	mg/kg	7.8	1
MJ4FD4	Potassium	mg/kg	1410	1
MJ4FD4	Silver	mg/kg	0.97	0
MJ4FD4	Sodium	mg/kg	97.2	1
MJ4FD4	Vanadium	mg/kg	10.8	1
MJ4FD4	Zinc	mg/kg	30.1	1
MJ4FD5	Aluminum	mg/kg	5070	1
MJ4FD5	Arsenic	mg/kg	5.9	1
MJ4FD5	Barium	mg/kg	34.9	1
MJ4FD5	Beryllium	mg/kg	0.32	1
MJ4FD5	Cadmium	mg/kg	0.47	0
MJ4FD5	Calcium	mg/kg	10300	1
MJ4FD5	Chromium	mg/kg	6.2	1
MJ4FD5	Cobalt	mg/kg	3	1
MJ4FD5	Copper	mg/kg	7.3	1
MJ4FD5	Iron	mg/kg	10200	1
MJ4FD5	Lead	mg/kg	4.4	1
MJ4FD5	Magnesium	mg/kg	5320	1
MJ4FD5	Manganese	mg/kg	217	1
MJ4FD5	Mercury	mg/kg	0.098	0
MJ4FD5	Nickel	mg/kg	6.1	1
MJ4FD5	Potassium	mg/kg	1140	1
MJ4FD5	Silver	mg/kg	0.94	0
MJ4FD5	Sodium	mg/kg	57.2	1
MJ4FD5	Vanadium	mg/kg	8.4	1
MJ4FD5	Zinc	mg/kg	26.5	1
MJ4FD7	Aluminum	mg/kg	23600	1
MJ4FD7	Arsenic	mg/kg	4.2	0
MJ4FD7	Barium	mg/kg	319	1
MJ4FD7	Beryllium	mg/kg	2.4	1
MJ4FD7	Cadmium	mg/kg	0.57	0
MJ4FD7	Calcium	mg/kg	15600	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4FD7	Chromium	mg/kg	52.8	1
MJ4FD7	Cobalt	mg/kg	20.9	1
MJ4FD7	Copper	mg/kg	46.6	1
MJ4FD7	Iron	mg/kg	39000	1
MJ4FD7	Lead	mg/kg	23.6	1
MJ4FD7	Magnesium	mg/kg	14900	1
MJ4FD7	Manganese	mg/kg	1060	1
MJ4FD7	Mercury	mg/kg	0.038	1
MJ4FD7	Nickel	mg/kg	48.8	1
MJ4FD7	Potassium	mg/kg	5260	1
MJ4FD7	Silver	mg/kg	1.1	0
MJ4FD7	Sodium	mg/kg	466	1
MJ4FD7	Vanadium	mg/kg	71.4	1
MJ4FD7	Zinc	mg/kg	139	1
MJ4FE4	Aluminum	mg/kg	7280	1
MJ4FE4	Arsenic	mg/kg	11.2	1
MJ4FE4	Barium	mg/kg	65.6	1
MJ4FE4	Beryllium	mg/kg	0.62	1
MJ4FE4	Cadmium	mg/kg	0.5	0
MJ4FE4	Calcium	mg/kg	14300	1
MJ4FE4	Chromium	mg/kg	19.1	1
MJ4FE4	Cobalt	mg/kg	7.8	1
MJ4FE4	Copper	mg/kg	15.8	1
MJ4FE4	Iron	mg/kg	19600	1
MJ4FE4	Lead	mg/kg	10	1
MJ4FE4	Magnesium	mg/kg	6140	1
MJ4FE4	Manganese	mg/kg	320	1
MJ4FE4	Mercury	mg/kg	0.006	1
MJ4FE4	Nickel	mg/kg	18.5	1
MJ4FE4	Potassium	mg/kg	1260	1
MJ4FE4	Silver	mg/kg	1	0
MJ4FE4	Sodium	mg/kg	82.9	1
MJ4FE4	Vanadium	mg/kg	21.8	1
MJ4FE4	Zinc	mg/kg	44.6	1
MJ4FE6	Aluminum	mg/kg	7400	1
MJ4FE6	Arsenic	mg/kg	8.5	1
MJ4FE6	Barium	mg/kg	67.3	1
MJ4FE6	Beryllium	mg/kg	0.66	1
MJ4FE6	Cadmium	mg/kg	0.47	0
MJ4FE6	Calcium	mg/kg	13100	1
MJ4FE6	Chromium	mg/kg	12.6	1
MJ4FE6	Cobalt	mg/kg	5.8	1
MJ4FE6	Copper	mg/kg	9.8	1
MJ4FE6	Iron	mg/kg	16200	1
MJ4FE6	Lead	mg/kg	7.9	1
MJ4FE6	Magnesium	mg/kg	6810	1
MJ4FE6	Manganese	mg/kg	348	1
MJ4FE6	Mercury	mg/kg	0.11	0
MJ4FE6	Nickel	mg/kg	11	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FE6	Potassium	mg/kg	1540	1
MJ4FE6	Silver	mg/kg	0.95	0
MJ4FE6	Sodium	mg/kg	73.3	1
MJ4FE6	Vanadium	mg/kg	18.4	1
MJ4FE6	Zinc	mg/kg	36.1	1
MJ4FF1	Aluminum	mg/kg	12400	1
MJ4FF1	Arsenic	mg/kg	5.8	1
MJ4FF1	Barium	mg/kg	156	1
MJ4FF1	Beryllium	mg/kg	1.2	1
MJ4FF1	Cadmium	mg/kg	0.56	0
MJ4FF1	Calcium	mg/kg	16600	1
MJ4FF1	Chromium	mg/kg	30.2	1
MJ4FF1	Cobalt	mg/kg	11.2	1
MJ4FF1	Copper	mg/kg	23.4	1
MJ4FF1	Iron	mg/kg	23600	1
MJ4FF1	Lead	mg/kg	11	1
MJ4FF1	Magnesium	mg/kg	8630	1
MJ4FF1	Manganese	mg/kg	461	1
MJ4FF1	Mercury	mg/kg	0.016	1
MJ4FF1	Nickel	mg/kg	26.7	1
MJ4FF1	Potassium	mg/kg	2230	1
MJ4FF1	Silver	mg/kg	1.1	0
MJ4FF1	Sodium	mg/kg	209	1
MJ4FF1	Vanadium	mg/kg	36.2	1
MJ4FF1	Zinc	mg/kg	59.4	1
MJ4FF2	Aluminum	mg/kg	13400	1
MJ4FF2	Arsenic	mg/kg	5.1	1
MJ4FF2	Barium	mg/kg	163	1
MJ4FF2	Beryllium	mg/kg	1.3	1
MJ4FF2	Cadmium	mg/kg	0.37	1
MJ4FF2	Calcium	mg/kg	9340	1
MJ4FF2	Chromium	mg/kg	31.6	1
MJ4FF2	Cobalt	mg/kg	11.9	1
MJ4FF2	Copper	mg/kg	35.1	1
MJ4FF2	Iron	mg/kg	25200	1
MJ4FF2	Lead	mg/kg	36.4	1
MJ4FF2	Magnesium	mg/kg	8140	1
MJ4FF2	Manganese	mg/kg	595	1
MJ4FF2	Mercury	mg/kg	0.074	1
MJ4FF2	Nickel	mg/kg	27.5	1
MJ4FF2	Potassium	mg/kg	2250	1
MJ4FF2	Sodium	mg/kg	223	1
MJ4FF2	Vanadium	mg/kg	38.5	1
MJ4FF2	Zinc	mg/kg	149	1
MJ4FF3	Aluminum	mg/kg	10400	1
MJ4FF3	Antimony	mg/kg	0.37	0
MJ4FF3	Arsenic	mg/kg	6.3	1
MJ4FF3	Barium	mg/kg	83.6	1
MJ4FF3	Beryllium	mg/kg	0.62	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4FF3	Cadmium	mg/kg	0.51	0
MJ4FF3	Calcium	mg/kg	11600	1
MJ4FF3	Chromium	mg/kg	39.9	1
MJ4FF3	Cobalt	mg/kg	12	1
MJ4FF3	Copper	mg/kg	17	1
MJ4FF3	Iron	mg/kg	25000	1
MJ4FF3	Lead	mg/kg	8.7	1
MJ4FF3	Magnesium	mg/kg	7170	1
MJ4FF3	Manganese	mg/kg	333	1
MJ4FF3	Mercury	mg/kg	0.1	0
MJ4FF3	Nickel	mg/kg	40.1	1
MJ4FF3	Potassium	mg/kg	1180	1
MJ4FF3	Selenium	mg/kg	3.5	0
MJ4FF3	Silver	mg/kg	1	0
MJ4FF3	Sodium	mg/kg	99.3	1
MJ4FF3	Vanadium	mg/kg	29.9	1
MJ4FF3	Zinc	mg/kg	79.8	1
MJ4FF8	Aluminum	mg/kg	9100	1
MJ4FF8	Antimony	mg/kg	0.91	0
MJ4FF8	Arsenic	mg/kg	7.7	1
MJ4FF8	Barium	mg/kg	57.8	1
MJ4FF8	Beryllium	mg/kg	0.54	1
MJ4FF8	Cadmium	mg/kg	0.48	0
MJ4FF8	Calcium	mg/kg	11300	1
MJ4FF8	Chromium	mg/kg	38.9	1
MJ4FF8	Cobalt	mg/kg	10	1
MJ4FF8	Copper	mg/kg	28.2	1
MJ4FF8	Iron	mg/kg	22600	1
MJ4FF8	Lead	mg/kg	8.9	1
MJ4FF8	Magnesium	mg/kg	8070	1
MJ4FF8	Manganese	mg/kg	391	1
MJ4FF8	Mercury	mg/kg	0.012	1
MJ4FF8	Nickel	mg/kg	35.5	1
MJ4FF8	Potassium	mg/kg	850	1
MJ4FF8	Selenium	mg/kg	3.4	0
MJ4FF8	Silver	mg/kg	0.96	0
MJ4FF8	Sodium	mg/kg	137	1
MJ4FF8	Vanadium	mg/kg	28.6	1
MJ4FF8	Zinc	mg/kg	62.3	1
MJ4FG9	Aluminum	mg/kg	5470	1
MJ4FG9	Arsenic	mg/kg	1.3	1
MJ4FG9	Barium	mg/kg	49.6	1
MJ4FG9	Beryllium	mg/kg	0.46	1
MJ4FG9	Cadmium	mg/kg	0.11	1
MJ4FG9	Calcium	mg/kg	2390	1
MJ4FG9	Chromium	mg/kg	9.1	1
MJ4FG9	Cobalt	mg/kg	3.6	1
MJ4FG9	Copper	mg/kg	10.8	1
MJ4FG9	Iron	mg/kg	10400	1

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Sample ID	Analyte	Unit	Value	Detect
MJ4FG9	Lead	mg/kg	6.6	1
MJ4FG9	Magnesium	mg/kg	3300	1
MJ4FG9	Manganese	mg/kg	161	1
MJ4FG9	Mercury	mg/kg	0.01	1
MJ4FG9	Nickel	mg/kg	10.6	1
MJ4FG9	Potassium	mg/kg	714	1
MJ4FG9	Selenium	mg/kg	1.4	1
MJ4FG9	Silver	mg/kg	1.2	0
MJ4FG9	Sodium	mg/kg	172	1
MJ4FG9	Vanadium	mg/kg	18.2	1
MJ4FG9	Zinc	mg/kg	40.7	1
MJ4FH1	Aluminum	mg/kg	7540	1
MJ4FH1	Arsenic	mg/kg	2.1	1
MJ4FH1	Barium	mg/kg	78.3	1
MJ4FH1	Beryllium	mg/kg	0.8	1
MJ4FH1	Cadmium	mg/kg	0.13	1
MJ4FH1	Calcium	mg/kg	4870	1
MJ4FH1	Chromium	mg/kg	16.9	1
MJ4FH1	Cobalt	mg/kg	6.7	1
MJ4FH1	Copper	mg/kg	14.7	1
MJ4FH1	Iron	mg/kg	15000	1
MJ4FH1	Lead	mg/kg	12.3	1
MJ4FH1	Magnesium	mg/kg	4020	1
MJ4FH1	Manganese	mg/kg	319	1
MJ4FH1	Mercury	mg/kg	0.034	1
MJ4FH1	Nickel	mg/kg	15.1	1
MJ4FH1	Potassium	mg/kg	1370	1
MJ4FH1	Selenium	mg/kg	4.3	0
MJ4FH1	Silver	mg/kg	1.2	0
MJ4FH1	Sodium	mg/kg	165	1
MJ4FH1	Vanadium	mg/kg	25.9	1
MJ4FH1	Zinc	mg/kg	62.6	1
MJ4FH9	Aluminum	mg/kg	10700	1
MJ4FH9	Arsenic	mg/kg	1.4	1
MJ4FH9	Barium	mg/kg	102	1
MJ4FH9	Beryllium	mg/kg	1.3	1
MJ4FH9	Cadmium	mg/kg	0.42	1
MJ4FH9	Calcium	mg/kg	5300	1
MJ4FH9	Chromium	mg/kg	24.9	1
MJ4FH9	Cobalt	mg/kg	7.7	1
MJ4FH9	Copper	mg/kg	26.2	1
MJ4FH9	Iron	mg/kg	19500	1
MJ4FH9	Lead	mg/kg	14.7	1
MJ4FH9	Magnesium	mg/kg	5130	1
MJ4FH9	Manganese	mg/kg	276	1
MJ4FH9	Mercury	mg/kg	0.044	1
MJ4FH9	Nickel	mg/kg	15.9	1
MJ4FH9	Potassium	mg/kg	1180	1
MJ4FH9	Selenium	mg/kg	4.1	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FH9	Sodium	mg/kg	229	1
MJ4FH9	Vanadium	mg/kg	36.9	1
MJ4FH9	Zinc	mg/kg	97.5	1
MJ4FJ4	Aluminum	mg/kg	6660	1
MJ4FJ4	Antimony	mg/kg	0.35	1
MJ4FJ4	Arsenic	mg/kg	1.6	1
MJ4FJ4	Barium	mg/kg	60.1	1
MJ4FJ4	Beryllium	mg/kg	0.67	1
MJ4FJ4	Cadmium	mg/kg	0.27	1
MJ4FJ4	Calcium	mg/kg	4280	1
MJ4FJ4	Chromium	mg/kg	16.9	1
MJ4FJ4	Cobalt	mg/kg	5.6	1
MJ4FJ4	Copper	mg/kg	11.8	1
MJ4FJ4	Iron	mg/kg	13500	1
MJ4FJ4	Lead	mg/kg	9.7	1
MJ4FJ4	Magnesium	mg/kg	4030	1
MJ4FJ4	Manganese	mg/kg	268	1
MJ4FJ4	Mercury	mg/kg	0.012	1
MJ4FJ4	Nickel	mg/kg	13.9	1
MJ4FJ4	Potassium	mg/kg	1040	1
MJ4FJ4	Selenium	mg/kg	2.4	1
MJ4FJ4	Sodium	mg/kg	150	1
MJ4FJ4	Vanadium	mg/kg	22.9	1
MJ4FJ4	Zinc	mg/kg	58.7	1
MJ4FJ6	Aluminum	mg/kg	11800	1
MJ4FJ6	Arsenic	mg/kg	2.7	1
MJ4FJ6	Barium	mg/kg	139	1
MJ4FJ6	Beryllium	mg/kg	1.2	1
MJ4FJ6	Cadmium	mg/kg	0.4	1
MJ4FJ6	Calcium	mg/kg	14800	1
MJ4FJ6	Chromium	mg/kg	29.7	1
MJ4FJ6	Cobalt	mg/kg	10.9	1
MJ4FJ6	Copper	mg/kg	23.7	1
MJ4FJ6	Iron	mg/kg	21200	1
MJ4FJ6	Lead	mg/kg	12	1
MJ4FJ6	Magnesium	mg/kg	8570	1
MJ4FJ6	Manganese	mg/kg	466	1
MJ4FJ6	Mercury	mg/kg	0.012	1
MJ4FJ6	Nickel	mg/kg	25.4	1
MJ4FJ6	Potassium	mg/kg	2370	1
MJ4FJ6	Selenium	mg/kg	5	1
MJ4FJ6	Sodium	mg/kg	270	1
MJ4FJ6	Vanadium	mg/kg	38.8	1
MJ4FJ6	Zinc	mg/kg	70.4	1
MJ4FK1	Aluminum	mg/kg	9990	1
MJ4FK1	Antimony	mg/kg	1.3	1
MJ4FK1	Arsenic	mg/kg	3.1	1
MJ4FK1	Barium	mg/kg	99.4	1
MJ4FK1	Beryllium	mg/kg	1	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FK1	Cadmium	mg/kg	0.14	1
MJ4FK1	Calcium	mg/kg	4730	1
MJ4FK1	Chromium	mg/kg	22.1	1
MJ4FK1	Cobalt	mg/kg	9.4	1
MJ4FK1	Copper	mg/kg	21	1
MJ4FK1	Iron	mg/kg	19300	1
MJ4FK1	Lead	mg/kg	16	1
MJ4FK1	Magnesium	mg/kg	5770	1
MJ4FK1	Manganese	mg/kg	358	1
MJ4FK1	Mercury	mg/kg	0.017	1
MJ4FK1	Nickel	mg/kg	21.7	1
MJ4FK1	Potassium	mg/kg	1690	1
MJ4FK1	Selenium	mg/kg	5.1	0
MJ4FK1	Sodium	mg/kg	154	1
MJ4FK1	Vanadium	mg/kg	28.2	1
MJ4FK1	Zinc	mg/kg	93.1	1
MJ4FL8	Aluminum	mg/kg	6900	1
MJ4FL8	Arsenic	mg/kg	3.1	1
MJ4FL8	Barium	mg/kg	101	1
MJ4FL8	Beryllium	mg/kg	0.42	1
MJ4FL8	Cadmium	mg/kg	0.58	1
MJ4FL8	Calcium	mg/kg	62800	1
MJ4FL8	Chromium	mg/kg	23.9	1
MJ4FL8	Cobalt	mg/kg	5.8	1
MJ4FL8	Copper	mg/kg	16.7	1
MJ4FL8	Iron	mg/kg	14400	1
MJ4FL8	Lead	mg/kg	14.5	1
MJ4FL8	Magnesium	mg/kg	4530	1
MJ4FL8	Manganese	mg/kg	196	1
MJ4FL8	Mercury	mg/kg	0.02	1
MJ4FL8	Nickel	mg/kg	15.2	1
MJ4FL8	Potassium	mg/kg	789	1
MJ4FL8	Selenium	mg/kg	4.9	1
MJ4FL8	Sodium	mg/kg	163	0
MJ4FL8	Vanadium	mg/kg	25	1
MJ4FL8	Zinc	mg/kg	60.5	1
MJ4FM0	Aluminum	mg/kg	6190	1
MJ4FM0	Arsenic	mg/kg	3.2	1
MJ4FM0	Barium	mg/kg	44.3	1
MJ4FM0	Beryllium	mg/kg	0.5	1
MJ4FM0	Cadmium	mg/kg	0.11	1
MJ4FM0	Calcium	mg/kg	1830	1
MJ4FM0	Chromium	mg/kg	14.4	1
MJ4FM0	Cobalt	mg/kg	4.6	1
MJ4FM0	Copper	mg/kg	8.7	0
MJ4FM0	Iron	mg/kg	12300	1
MJ4FM0	Lead	mg/kg	5.7	1
MJ4FM0	Magnesium	mg/kg	3390	1
MJ4FM0	Manganese	mg/kg	143	1

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Sample ID	Analyte	Unit	Value	Detect
MJ4FM0	Mercury	mg/kg	0.11	0
MJ4FM0	Nickel	mg/kg	12.5	1
MJ4FM0	Potassium	mg/kg	720	1
MJ4FM0	Selenium	mg/kg	2.3	0
MJ4FM0	Sodium	mg/kg	110	0
MJ4FM0	Vanadium	mg/kg	18.9	1
MJ4FM0	Zinc	mg/kg	38.6	1
MJ4FM1	Aluminum	mg/kg	15000	1
MJ4FM1	Arsenic	mg/kg	9.2	1
MJ4FM1	Barium	mg/kg	187	1
MJ4FM1	Beryllium	mg/kg	1.4	1
MJ4FM1	Cadmium	mg/kg	1.3	1
MJ4FM1	Calcium	mg/kg	5940	1
MJ4FM1	Chromium	mg/kg	34.1	1
MJ4FM1	Cobalt	mg/kg	13.2	1
MJ4FM1	Copper	mg/kg	51.3	1
MJ4FM1	Iron	mg/kg	28600	1
MJ4FM1	Lead	mg/kg	71.5	1
MJ4FM1	Magnesium	mg/kg	8230	1
MJ4FM1	Manganese	mg/kg	659	1
MJ4FM1	Mercury	mg/kg	0.13	1
MJ4FM1	Nickel	mg/kg	29.6	1
MJ4FM1	Potassium	mg/kg	2460	1
MJ4FM1	Selenium	mg/kg	5.1	1
MJ4FM1	Sodium	mg/kg	341	1
MJ4FM1	Vanadium	mg/kg	40.9	1
MJ4FM1	Zinc	mg/kg	243	1
MJ4FM2	Aluminum	mg/kg	8330	1
MJ4FM2	Arsenic	mg/kg	12.5	1
MJ4FM2	Barium	mg/kg	106	1
MJ4FM2	Beryllium	mg/kg	0.51	1
MJ4FM2	Cadmium	mg/kg	0.22	1
MJ4FM2	Calcium	mg/kg	8020	1
MJ4FM2	Chromium	mg/kg	37.1	1
MJ4FM2	Cobalt	mg/kg	10.2	1
MJ4FM2	Copper	mg/kg	20.6	1
MJ4FM2	Iron	mg/kg	21900	1
MJ4FM2	Lead	mg/kg	12.2	1
MJ4FM2	Magnesium	mg/kg	6420	1
MJ4FM2	Manganese	mg/kg	409	1
MJ4FM2	Mercury	mg/kg	0.019	1
MJ4FM2	Nickel	mg/kg	32.2	1
MJ4FM2	Potassium	mg/kg	943	1
MJ4FM2	Selenium	mg/kg	3.1	0
MJ4FM2	Sodium	mg/kg	144	1
MJ4FM2	Vanadium	mg/kg	30	1
MJ4FM2	Zinc	mg/kg	59.6	1
MJ4FM3	Aluminum	mg/kg	7830	1
MJ4FM3	Antimony	mg/kg	1	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FM3	Arsenic	mg/kg	3	1
MJ4FM3	Barium	mg/kg	76.6	1
MJ4FM3	Beryllium	mg/kg	0.77	1
MJ4FM3	Cadmium	mg/kg	0.32	1
MJ4FM3	Calcium	mg/kg	2430	1
MJ4FM3	Chromium	mg/kg	16.6	1
MJ4FM3	Cobalt	mg/kg	7.3	1
MJ4FM3	Copper	mg/kg	11.3	1
MJ4FM3	Iron	mg/kg	13700	1
MJ4FM3	Lead	mg/kg	21.1	1
MJ4FM3	Magnesium	mg/kg	3280	1
MJ4FM3	Manganese	mg/kg	162	1
MJ4FM3	Mercury	mg/kg	0.016	1
MJ4FM3	Nickel	mg/kg	14.4	1
MJ4FM3	Potassium	mg/kg	1490	1
MJ4FM3	Selenium	mg/kg	2.3	0
MJ4FM3	Silver	mg/kg	1.2	0
MJ4FM3	Sodium	mg/kg	153	0
MJ4FM3	Vanadium	mg/kg	22	1
MJ4FM3	Zinc	mg/kg	83.5	1
MJ4FM9	Aluminum	mg/kg	6310	1
MJ4FM9	Arsenic	mg/kg	1.4	0
MJ4FM9	Barium	mg/kg	61.5	1
MJ4FM9	Beryllium	mg/kg	0.7	1
MJ4FM9	Cadmium	mg/kg	0.19	1
MJ4FM9	Calcium	mg/kg	3450	1
MJ4FM9	Chromium	mg/kg	8.9	1
MJ4FM9	Cobalt	mg/kg	3.8	1
MJ4FM9	Copper	mg/kg	5.5	1
MJ4FM9	Iron	mg/kg	7560	1
MJ4FM9	Lead	mg/kg	3.8	1
MJ4FM9	Magnesium	mg/kg	2070	1
MJ4FM9	Manganese	mg/kg	138	1
MJ4FM9	Mercury	mg/kg	0.008	1
MJ4FM9	Nickel	mg/kg	5.8	1
MJ4FM9	Potassium	mg/kg	1030	1
MJ4FM9	Selenium	mg/kg	2.6	1
MJ4FM9	Sodium	mg/kg	91.6	1
MJ4FM9	Vanadium	mg/kg	12.9	1
MJ4FM9	Zinc	mg/kg	26.1	1
MJ4FN6	Aluminum	mg/kg	8840	1
MJ4FN6	Arsenic	mg/kg	1.9	0
MJ4FN6	Barium	mg/kg	221	1
MJ4FN6	Beryllium	mg/kg	0.7	1
MJ4FN6	Cadmium	mg/kg	0.85	1
MJ4FN6	Calcium	mg/kg	45500	1
MJ4FN6	Chromium	mg/kg	23.8	1
MJ4FN6	Cobalt	mg/kg	7.5	1
MJ4FN6	Copper	mg/kg	16.3	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FN6	Iron	mg/kg	15600	1
MJ4FN6	Lead	mg/kg	10.1	1
MJ4FN6	Magnesium	mg/kg	4710	1
MJ4FN6	Manganese	mg/kg	447	1
MJ4FN6	Mercury	mg/kg	0.026	1
MJ4FN6	Nickel	mg/kg	24.3	1
MJ4FN6	Potassium	mg/kg	1590	1
MJ4FN6	Selenium	mg/kg	3.4	1
MJ4FN6	Sodium	mg/kg	173	0
MJ4FN6	Vanadium	mg/kg	33.9	1
MJ4FN6	Zinc	mg/kg	72.8	1
MJ4FP1	Aluminum	mg/kg	5600	1
MJ4FP1	Antimony	mg/kg	1.2	0
MJ4FP1	Arsenic	mg/kg	0.89	0
MJ4FP1	Barium	mg/kg	39.2	1
MJ4FP1	Beryllium	mg/kg	0.61	1
MJ4FP1	Cadmium	mg/kg	0.086	0
MJ4FP1	Calcium	mg/kg	1490	1
MJ4FP1	Chromium	mg/kg	4.6	1
MJ4FP1	Cobalt	mg/kg	3.4	1
MJ4FP1	Copper	mg/kg	3	1
MJ4FP1	Iron	mg/kg	11400	1
MJ4FP1	Lead	mg/kg	6.8	1
MJ4FP1	Magnesium	mg/kg	2240	1
MJ4FP1	Manganese	mg/kg	118	1
MJ4FP1	Nickel	mg/kg	2.8	1
MJ4FP1	Potassium	mg/kg	1250	1
MJ4FP1	Selenium	mg/kg	2.1	0
MJ4FP1	Silver	mg/kg	0.89	0
MJ4FP1	Sodium	mg/kg	114	0
MJ4FP1	Vanadium	mg/kg	18.2	1
MJ4FP1	Zinc	mg/kg	51.8	1
MJ4FP6	Aluminum	mg/kg	6470	1
MJ4FP6	Antimony	mg/kg	0.54	0
MJ4FP6	Arsenic	mg/kg	9.5	1
MJ4FP6	Barium	mg/kg	67.6	1
MJ4FP6	Beryllium	mg/kg	0.53	1
MJ4FP6	Cadmium	mg/kg	0.076	0
MJ4FP6	Calcium	mg/kg	8110	1
MJ4FP6	Chromium	mg/kg	12.8	1
MJ4FP6	Cobalt	mg/kg	7	1
MJ4FP6	Copper	mg/kg	12.9	1
MJ4FP6	Iron	mg/kg	15900	1
MJ4FP6	Lead	mg/kg	8.1	1
MJ4FP6	Magnesium	mg/kg	4540	1
MJ4FP6	Manganese	mg/kg	307	1
MJ4FP6	Mercury	mg/kg	0.005	1
MJ4FP6	Nickel	mg/kg	13.5	1
MJ4FP6	Potassium	mg/kg	1100	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FP6	Selenium	mg/kg	2.6	0
MJ4FP6	Silver	mg/kg	1	0
MJ4FP6	Sodium	mg/kg	87.4	0
MJ4FP6	Vanadium	mg/kg	17.3	1
MJ4FP6	Zinc	mg/kg	39.6	1
MJ4FQ6	Aluminum	mg/kg	14000	1
MJ4FQ6	Arsenic	mg/kg	14.1	1
MJ4FQ6	Barium	mg/kg	162	1
MJ4FQ6	Beryllium	mg/kg	1.2	1
MJ4FQ6	Cadmium	mg/kg	0.15	1
MJ4FQ6	Calcium	mg/kg	10200	1
MJ4FQ6	Chromium	mg/kg	25.9	1
MJ4FQ6	Cobalt	mg/kg	15	1
MJ4FQ6	Copper	mg/kg	22.6	1
MJ4FQ6	Iron	mg/kg	25900	1
MJ4FQ6	Lead	mg/kg	17.7	1
MJ4FQ6	Magnesium	mg/kg	7260	1
MJ4FQ6	Manganese	mg/kg	641	1
MJ4FQ6	Mercury	mg/kg	0.01	1
MJ4FQ6	Nickel	mg/kg	26.4	1
MJ4FQ6	Potassium	mg/kg	2310	1
MJ4FQ6	Selenium	mg/kg	3.5	0
MJ4FQ6	Sodium	mg/kg	197	1
MJ4FQ6	Vanadium	mg/kg	34.4	1
MJ4FQ6	Zinc	mg/kg	64	1
MJ4FQ7	Aluminum	mg/kg	5620	1
MJ4FQ7	Arsenic	mg/kg	3.9	1
MJ4FQ7	Barium	mg/kg	41.1	1
MJ4FQ7	Beryllium	mg/kg	0.57	1
MJ4FQ7	Cadmium	mg/kg	0.58	0
MJ4FQ7	Calcium	mg/kg	11300	1
MJ4FQ7	Chromium	mg/kg	8.3	1
MJ4FQ7	Cobalt	mg/kg	4.4	1
MJ4FQ7	Copper	mg/kg	7	0
MJ4FQ7	Iron	mg/kg	12400	1
MJ4FQ7	Lead	mg/kg	5.7	1
MJ4FQ7	Magnesium	mg/kg	4700	1
MJ4FQ7	Manganese	mg/kg	214	1
MJ4FQ7	Mercury	mg/kg	0.006	1
MJ4FQ7	Nickel	mg/kg	6.4	1
MJ4FQ7	Potassium	mg/kg	1180	1
MJ4FQ7	Selenium	mg/kg	2.6	0
MJ4FQ7	Sodium	mg/kg	111	0
MJ4FQ7	Vanadium	mg/kg	14.5	1
MJ4FQ7	Zinc	mg/kg	30.9	1
MJ4FQ8	Aluminum	mg/kg	10400	1
MJ4FQ8	Arsenic	mg/kg	13.5	1
MJ4FQ8	Barium	mg/kg	97.2	1
MJ4FQ8	Beryllium	mg/kg	0.99	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FQ8	Cadmium	mg/kg	0.14	1
MJ4FQ8	Calcium	mg/kg	19400	1
MJ4FQ8	Chromium	mg/kg	14	1
MJ4FQ8	Cobalt	mg/kg	9.7	1
MJ4FQ8	Copper	mg/kg	16.5	1
MJ4FQ8	Iron	mg/kg	24800	1
MJ4FQ8	Lead	mg/kg	12.7	1
MJ4FQ8	Magnesium	mg/kg	7330	1
MJ4FQ8	Manganese	mg/kg	458	1
MJ4FQ8	Mercury	mg/kg	0.008	1
MJ4FQ8	Nickel	mg/kg	13.4	1
MJ4FQ8	Potassium	mg/kg	1860	1
MJ4FQ8	Selenium	mg/kg	3.9	0
MJ4FQ8	Sodium	mg/kg	136	0
MJ4FQ8	Vanadium	mg/kg	28.1	1
MJ4FQ8	Zinc	mg/kg	76.4	1
MJ4FR0	Aluminum	mg/kg	4680	1
MJ4FR0	Arsenic	mg/kg	3	0
MJ4FR0	Barium	mg/kg	35.5	1
MJ4FR0	Beryllium	mg/kg	0.35	1
MJ4FR0	Cadmium	mg/kg	0.62	0
MJ4FR0	Calcium	mg/kg	5370	1
MJ4FR0	Chromium	mg/kg	6.4	1
MJ4FR0	Cobalt	mg/kg	2.7	1
MJ4FR0	Copper	mg/kg	6	0
MJ4FR0	Iron	mg/kg	9830	1
MJ4FR0	Lead	mg/kg	3.9	1
MJ4FR0	Magnesium	mg/kg	4000	1
MJ4FR0	Manganese	mg/kg	138	1
MJ4FR0	Mercury	mg/kg	0.006	1
MJ4FR0	Nickel	mg/kg	5.7	1
MJ4FR0	Potassium	mg/kg	747	1
MJ4FR0	Selenium	mg/kg	3	0
MJ4FR0	Sodium	mg/kg	99	0
MJ4FR0	Vanadium	mg/kg	8.9	1
MJ4FR0	Zinc	mg/kg	27.9	1
MJ4FR1	Aluminum	mg/kg	8020	1
MJ4FR1	Arsenic	mg/kg	3.1	0
MJ4FR1	Barium	mg/kg	56.8	1
MJ4FR1	Beryllium	mg/kg	0.73	1
MJ4FR1	Cadmium	mg/kg	0.28	1
MJ4FR1	Calcium	mg/kg	2290	1
MJ4FR1	Chromium	mg/kg	12.6	1
MJ4FR1	Cobalt	mg/kg	5.4	1
MJ4FR1	Copper	mg/kg	7.9	0
MJ4FR1	Iron	mg/kg	15300	1
MJ4FR1	Lead	mg/kg	10.4	1
MJ4FR1	Magnesium	mg/kg	4110	1
MJ4FR1	Manganese	mg/kg	217	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4FR1	Mercury	mg/kg	0.013	1
MJ4FR1	Nickel	mg/kg	10	1
MJ4FR1	Potassium	mg/kg	1400	1
MJ4FR1	Selenium	mg/kg	3.1	0
MJ4FR1	Sodium	mg/kg	159	1
MJ4FR1	Vanadium	mg/kg	20.1	1
MJ4FR1	Zinc	mg/kg	102	1
MJ4FR2	Aluminum	mg/kg	6140	1
MJ4FR2	Arsenic	mg/kg	4.9	1
MJ4FR2	Barium	mg/kg	47.8	1
MJ4FR2	Beryllium	mg/kg	0.51	1
MJ4FR2	Cadmium	mg/kg	0.14	1
MJ4FR2	Calcium	mg/kg	4510	1
MJ4FR2	Chromium	mg/kg	10.7	1
MJ4FR2	Cobalt	mg/kg	4.5	1
MJ4FR2	Copper	mg/kg	8.5	0
MJ4FR2	Iron	mg/kg	12100	1
MJ4FR2	Lead	mg/kg	6.1	1
MJ4FR2	Magnesium	mg/kg	4240	1
MJ4FR2	Manganese	mg/kg	225	1
MJ4FR2	Mercury	mg/kg	0.009	1
MJ4FR2	Nickel	mg/kg	9.5	1
MJ4FR2	Potassium	mg/kg	1120	1
MJ4FR2	Selenium	mg/kg	2.8	0
MJ4FR2	Sodium	mg/kg	112	0
MJ4FR2	Vanadium	mg/kg	14.3	1
MJ4FR2	Zinc	mg/kg	49.5	1
MJ4FR6	Aluminum	mg/kg	5870	1
MJ4FR6	Arsenic	mg/kg	7.1	1
MJ4FR6	Barium	mg/kg	38.7	1
MJ4FR6	Beryllium	mg/kg	0.46	1
MJ4FR6	Cadmium	mg/kg	0.058	1
MJ4FR6	Calcium	mg/kg	8050	1
MJ4FR6	Chromium	mg/kg	7.2	1
MJ4FR6	Cobalt	mg/kg	3.6	1
MJ4FR6	Copper	mg/kg	8.7	1
MJ4FR6	Iron	mg/kg	12400	1
MJ4FR6	Lead	mg/kg	7.4	1
MJ4FR6	Magnesium	mg/kg	4890	1
MJ4FR6	Manganese	mg/kg	257	1
MJ4FR6	Mercury	mg/kg	0.007	1
MJ4FR6	Nickel	mg/kg	7	1
MJ4FR6	Potassium	mg/kg	1020	1
MJ4FR6	Selenium	mg/kg	3.6	1
MJ4FR6	Silver	mg/kg	1.2	0
MJ4FR6	Sodium	mg/kg	92	0
MJ4FR6	Vanadium	mg/kg	9	1
MJ4FR6	Zinc	mg/kg	40.7	1
MJ4FR8	Aluminum	mg/kg	11100	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4FR8	Arsenic	mg/kg	1.9	0
MJ4FR8	Barium	mg/kg	119	1
MJ4FR8	Beryllium	mg/kg	0.99	1
MJ4FR8	Cadmium	mg/kg	0.34	1
MJ4FR8	Calcium	mg/kg	2520	1
MJ4FR8	Chromium	mg/kg	13.9	1
MJ4FR8	Cobalt	mg/kg	6.4	1
MJ4FR8	Copper	mg/kg	11.9	1
MJ4FR8	Iron	mg/kg	13700	1
MJ4FR8	Lead	mg/kg	10.8	1
MJ4FR8	Magnesium	mg/kg	2920	1
MJ4FR8	Manganese	mg/kg	265	1
MJ4FR8	Mercury	mg/kg	0.022	1
MJ4FR8	Nickel	mg/kg	12.1	1
MJ4FR8	Potassium	mg/kg	1560	1
MJ4FR8	Selenium	mg/kg	2	0
MJ4FR8	Silver	mg/kg	0.98	0
MJ4FR8	Sodium	mg/kg	162	1
MJ4FR8	Vanadium	mg/kg	23.3	1
MJ4FR8	Zinc	mg/kg	55.2	1
MJ4FR9	Aluminum	mg/kg	8670	1
MJ4FR9	Arsenic	mg/kg	1.2	0
MJ4FR9	Barium	mg/kg	90.2	1
MJ4FR9	Beryllium	mg/kg	0.82	1
MJ4FR9	Cadmium	mg/kg	0.1	1
MJ4FR9	Calcium	mg/kg	2270	1
MJ4FR9	Chromium	mg/kg	14.9	1
MJ4FR9	Cobalt	mg/kg	6.2	1
MJ4FR9	Copper	mg/kg	11.3	1
MJ4FR9	Iron	mg/kg	14300	1
MJ4FR9	Lead	mg/kg	5.4	1
MJ4FR9	Magnesium	mg/kg	2930	1
MJ4FR9	Manganese	mg/kg	189	1
MJ4FR9	Mercury	mg/kg	0.005	1
MJ4FR9	Nickel	mg/kg	11.8	1
MJ4FR9	Potassium	mg/kg	1410	1
MJ4FR9	Selenium	mg/kg	2.7	0
MJ4FR9	Silver	mg/kg	1.1	0
MJ4FR9	Sodium	mg/kg	165	1
MJ4FR9	Vanadium	mg/kg	24.9	1
MJ4FR9	Zinc	mg/kg	30.9	1
MJ4FS0	Aluminum	mg/kg	11200	1
MJ4FS0	Arsenic	mg/kg	1.6	0
MJ4FS0	Barium	mg/kg	108	1
MJ4FS0	Beryllium	mg/kg	0.98	1
MJ4FS0	Cadmium	mg/kg	0.52	0
MJ4FS0	Calcium	mg/kg	2460	1
MJ4FS0	Chromium	mg/kg	16	1
MJ4FS0	Cobalt	mg/kg	6.6	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4FS0	Copper	mg/kg	11.8	1
MJ4FS0	Iron	mg/kg	15600	1
MJ4FS0	Lead	mg/kg	5.3	1
MJ4FS0	Magnesium	mg/kg	3150	1
MJ4FS0	Manganese	mg/kg	212	1
MJ4FS0	Mercury	mg/kg	0.006	1
MJ4FS0	Nickel	mg/kg	12.6	1
MJ4FS0	Potassium	mg/kg	1470	1
MJ4FS0	Selenium	mg/kg	2	0
MJ4FS0	Silver	mg/kg	1	0
MJ4FS0	Sodium	mg/kg	177	1
MJ4FS0	Vanadium	mg/kg	26.4	1
MJ4FS0	Zinc	mg/kg	35.8	1
MJ4FS1	Aluminum	mg/kg	6460	1
MJ4FS1	Arsenic	mg/kg	1.2	0
MJ4FS1	Barium	mg/kg	69.4	1
MJ4FS1	Beryllium	mg/kg	0.71	1
MJ4FS1	Cadmium	mg/kg	0.058	1
MJ4FS1	Calcium	mg/kg	2000	1
MJ4FS1	Chromium	mg/kg	14.7	1
MJ4FS1	Cobalt	mg/kg	6.2	1
MJ4FS1	Copper	mg/kg	11.4	1
MJ4FS1	Iron	mg/kg	12500	1
MJ4FS1	Lead	mg/kg	4.4	1
MJ4FS1	Magnesium	mg/kg	3240	1
MJ4FS1	Manganese	mg/kg	212	1
MJ4FS1	Mercury	mg/kg	0.007	1
MJ4FS1	Nickel	mg/kg	12.4	1
MJ4FS1	Potassium	mg/kg	1560	1
MJ4FS1	Selenium	mg/kg	3	0
MJ4FS1	Silver	mg/kg	1	0
MJ4FS1	Sodium	mg/kg	133	1
MJ4FS1	Vanadium	mg/kg	21.3	1
MJ4FS1	Zinc	mg/kg	32.8	1
MJ4FS2	Aluminum	mg/kg	11500	1
MJ4FS2	Arsenic	mg/kg	0.76	0
MJ4FS2	Barium	mg/kg	64.4	1
MJ4FS2	Beryllium	mg/kg	1.2	1
MJ4FS2	Cadmium	mg/kg	0.2	1
MJ4FS2	Calcium	mg/kg	4110	1
MJ4FS2	Chromium	mg/kg	8.4	1
MJ4FS2	Cobalt	mg/kg	10	1
MJ4FS2	Copper	mg/kg	9.5	1
MJ4FS2	Iron	mg/kg	26600	1
MJ4FS2	Lead	mg/kg	9.6	1
MJ4FS2	Magnesium	mg/kg	6910	1
MJ4FS2	Manganese	mg/kg	516	1
MJ4FS2	Mercury	mg/kg	0.012	1
MJ4FS2	Nickel	mg/kg	6.6	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FS2	Potassium	mg/kg	1060	1
MJ4FS2	Selenium	mg/kg	4.2	1
MJ4FS2	Silver	mg/kg	0.85	0
MJ4FS2	Sodium	mg/kg	78.4	0
MJ4FS2	Vanadium	mg/kg	33.6	1
MJ4FS2	Zinc	mg/kg	83.1	1
MJ4FS4	Aluminum	mg/kg	12000	1
MJ4FS4	Arsenic	mg/kg	6	1
MJ4FS4	Barium	mg/kg	125	1
MJ4FS4	Beryllium	mg/kg	1.3	1
MJ4FS4	Cadmium	mg/kg	0.23	1
MJ4FS4	Calcium	mg/kg	8370	1
MJ4FS4	Chromium	mg/kg	14	1
MJ4FS4	Cobalt	mg/kg	11	1
MJ4FS4	Copper	mg/kg	11.8	1
MJ4FS4	Iron	mg/kg	24900	1
MJ4FS4	Lead	mg/kg	11.1	1
MJ4FS4	Magnesium	mg/kg	8090	1
MJ4FS4	Manganese	mg/kg	457	1
MJ4FS4	Mercury	mg/kg	0.017	1
MJ4FS4	Nickel	mg/kg	12.7	1
MJ4FS4	Potassium	mg/kg	2430	1
MJ4FS4	Selenium	mg/kg	2.3	0
MJ4FS4	Silver	mg/kg	0.93	0
MJ4FS4	Sodium	mg/kg	320	1
MJ4FS4	Vanadium	mg/kg	33.4	1
MJ4FS4	Zinc	mg/kg	94.2	1
MJ4FS5	Aluminum	mg/kg	10500	1
MJ4FS5	Arsenic	mg/kg	4.2	1
MJ4FS5	Barium	mg/kg	74.2	1
MJ4FS5	Beryllium	mg/kg	0.86	1
MJ4FS5	Cadmium	mg/kg	0.67	1
MJ4FS5	Calcium	mg/kg	2690	1
MJ4FS5	Chromium	mg/kg	13.5	1
MJ4FS5	Cobalt	mg/kg	6.3	1
MJ4FS5	Copper	mg/kg	11.5	1
MJ4FS5	Iron	mg/kg	17800	1
MJ4FS5	Lead	mg/kg	16.8	1
MJ4FS5	Magnesium	mg/kg	5940	1
MJ4FS5	Manganese	mg/kg	243	1
MJ4FS5	Mercury	mg/kg	0.075	1
MJ4FS5	Nickel	mg/kg	11.3	1
MJ4FS5	Potassium	mg/kg	1740	1
MJ4FS5	Selenium	mg/kg	1.7	0
MJ4FS5	Silver	mg/kg	1	0
MJ4FS5	Sodium	mg/kg	184	1
MJ4FS5	Vanadium	mg/kg	21.1	1
MJ4FS5	Zinc	mg/kg	140	1
MJ4FS6	Aluminum	mg/kg	4740	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FS6	Arsenic	mg/kg	1.8	1
MJ4FS6	Barium	mg/kg	45.8	1
MJ4FS6	Beryllium	mg/kg	0.47	1
MJ4FS6	Cadmium	mg/kg	0.37	1
MJ4FS6	Calcium	mg/kg	1320	1
MJ4FS6	Chromium	mg/kg	10.3	1
MJ4FS6	Cobalt	mg/kg	3.8	1
MJ4FS6	Copper	mg/kg	6.4	1
MJ4FS6	Iron	mg/kg	11500	1
MJ4FS6	Lead	mg/kg	13.2	1
MJ4FS6	Magnesium	mg/kg	2470	1
MJ4FS6	Manganese	mg/kg	111	1
MJ4FS6	Mercury	mg/kg	0.01	1
MJ4FS6	Nickel	mg/kg	7.6	1
MJ4FS6	Potassium	mg/kg	823	1
MJ4FS6	Selenium	mg/kg	1	0
MJ4FS6	Silver	mg/kg	0.84	0
MJ4FS6	Sodium	mg/kg	63	0
MJ4FS6	Vanadium	mg/kg	16.9	1
MJ4FS6	Zinc	mg/kg	88.7	1
MJ4FS8	Aluminum	mg/kg	9630	1
MJ4FS8	Arsenic	mg/kg	13.7	1
MJ4FS8	Barium	mg/kg	68.7	1
MJ4FS8	Beryllium	mg/kg	0.77	1
MJ4FS8	Cadmium	mg/kg	0.16	1
MJ4FS8	Calcium	mg/kg	15300	1
MJ4FS8	Chromium	mg/kg	12	1
MJ4FS8	Cobalt	mg/kg	5.7	1
MJ4FS8	Copper	mg/kg	11.6	1
MJ4FS8	Iron	mg/kg	17800	1
MJ4FS8	Lead	mg/kg	10.9	1
MJ4FS8	Magnesium	mg/kg	9140	1
MJ4FS8	Manganese	mg/kg	413	1
MJ4FS8	Mercury	mg/kg	0.019	1
MJ4FS8	Nickel	mg/kg	10	1
MJ4FS8	Potassium	mg/kg	1810	1
MJ4FS8	Selenium	mg/kg	2.7	0
MJ4FS8	Silver	mg/kg	1	0
MJ4FS8	Sodium	mg/kg	137	1
MJ4FS8	Vanadium	mg/kg	17.8	1
MJ4FS8	Zinc	mg/kg	62.5	1
MJ4FT3	Aluminum	mg/kg	4100	1
MJ4FT3	Arsenic	mg/kg	0.73	0
MJ4FT3	Barium	mg/kg	36.7	1
MJ4FT3	Beryllium	mg/kg	0.63	1
MJ4FT3	Cadmium	mg/kg	0.036	1
MJ4FT3	Calcium	mg/kg	1460	1
MJ4FT3	Chromium	mg/kg	2.6	1
MJ4FT3	Cobalt	mg/kg	3.4	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FT3	Copper	mg/kg	3.4	1
MJ4FT3	Iron	mg/kg	9860	1
MJ4FT3	Lead	mg/kg	3.2	1
MJ4FT3	Magnesium	mg/kg	1840	1
MJ4FT3	Manganese	mg/kg	158	1
MJ4FT3	Mercury	mg/kg	0.098	0
MJ4FT3	Nickel	mg/kg	2.4	1
MJ4FT3	Potassium	mg/kg	1140	1
MJ4FT3	Selenium	mg/kg	0.76	0
MJ4FT3	Silver	mg/kg	0.73	0
MJ4FT3	Sodium	mg/kg	88	0
MJ4FT3	Vanadium	mg/kg	13.6	1
MJ4FT3	Zinc	mg/kg	29.4	1
MJ4FT7	Aluminum	mg/kg	6690	1
MJ4FT7	Arsenic	mg/kg	3.4	1
MJ4FT7	Barium	mg/kg	42.2	1
MJ4FT7	Beryllium	mg/kg	0.51	1
MJ4FT7	Cadmium	mg/kg	0.21	1
MJ4FT7	Calcium	mg/kg	1430	1
MJ4FT7	Chromium	mg/kg	8.6	1
MJ4FT7	Cobalt	mg/kg	4.5	1
MJ4FT7	Copper	mg/kg	5.5	1
MJ4FT7	Iron	mg/kg	13700	1
MJ4FT7	Lead	mg/kg	7.5	1
MJ4FT7	Magnesium	mg/kg	4610	1
MJ4FT7	Manganese	mg/kg	130	1
MJ4FT7	Mercury	mg/kg	0.1	0
MJ4FT7	Nickel	mg/kg	7.9	1
MJ4FT7	Potassium	mg/kg	1090	1
MJ4FT7	Selenium	mg/kg	1.8	1
MJ4FT7	Sodium	mg/kg	89	0
MJ4FT7	Vanadium	mg/kg	14	1
MJ4FT7	Zinc	mg/kg	101	1
MJ4FT8	Aluminum	mg/kg	6820	1
MJ4FT8	Arsenic	mg/kg	10	1
MJ4FT8	Barium	mg/kg	67.4	1
MJ4FT8	Beryllium	mg/kg	0.57	1
MJ4FT8	Cadmium	mg/kg	0.079	1
MJ4FT8	Calcium	mg/kg	15000	1
MJ4FT8	Chromium	mg/kg	14	1
MJ4FT8	Cobalt	mg/kg	6.1	1
MJ4FT8	Copper	mg/kg	12.1	1
MJ4FT8	Iron	mg/kg	16000	1
MJ4FT8	Lead	mg/kg	10	1
MJ4FT8	Magnesium	mg/kg	6450	1
MJ4FT8	Manganese	mg/kg	302	1
MJ4FT8	Mercury	mg/kg	0.1	0
MJ4FT8	Nickel	mg/kg	12.4	1
MJ4FT8	Potassium	mg/kg	1200	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FT8	Selenium	mg/kg	2	1
MJ4FT8	Sodium	mg/kg	99.1	1
MJ4FT8	Vanadium	mg/kg	18.4	1
MJ4FT8	Zinc	mg/kg	41.4	1
MJ4FW0	Aluminum	mg/kg	7810	1
MJ4FW0	Arsenic	mg/kg	10.4	1
MJ4FW0	Barium	mg/kg	63.2	1
MJ4FW0	Beryllium	mg/kg	0.68	1
MJ4FW0	Cadmium	mg/kg	0.068	1
MJ4FW0	Calcium	mg/kg	12300	1
MJ4FW0	Chromium	mg/kg	11.1	1
MJ4FW0	Cobalt	mg/kg	5.8	1
MJ4FW0	Copper	mg/kg	12.2	1
MJ4FW0	Iron	mg/kg	16000	1
MJ4FW0	Lead	mg/kg	9.2	1
MJ4FW0	Magnesium	mg/kg	6760	1
MJ4FW0	Manganese	mg/kg	341	1
MJ4FW0	Mercury	mg/kg	0.005	1
MJ4FW0	Nickel	mg/kg	9.7	1
MJ4FW0	Potassium	mg/kg	1670	1
MJ4FW0	Selenium	mg/kg	2.3	1
MJ4FW0	Sodium	mg/kg	116	1
MJ4FW0	Vanadium	mg/kg	17.5	1
MJ4FW0	Zinc	mg/kg	45.5	1
MJ4FW4	Aluminum	mg/kg	7900	1
MJ4FW4	Arsenic	mg/kg	2.7	1
MJ4FW4	Barium	mg/kg	62.3	1
MJ4FW4	Beryllium	mg/kg	0.7	1
MJ4FW4	Cadmium	mg/kg	0.088	1
MJ4FW4	Calcium	mg/kg	2180	1
MJ4FW4	Chromium	mg/kg	12.1	1
MJ4FW4	Cobalt	mg/kg	4.8	1
MJ4FW4	Copper	mg/kg	8.1	1
MJ4FW4	Iron	mg/kg	13500	1
MJ4FW4	Lead	mg/kg	6	1
MJ4FW4	Magnesium	mg/kg	3560	1
MJ4FW4	Manganese	mg/kg	190	1
MJ4FW4	Mercury	mg/kg	0.1	0
MJ4FW4	Nickel	mg/kg	9.4	1
MJ4FW4	Potassium	mg/kg	1210	1
MJ4FW4	Selenium	mg/kg	1.6	1
MJ4FW4	Sodium	mg/kg	149	1
MJ4FW4	Vanadium	mg/kg	19.8	1
MJ4FW4	Zinc	mg/kg	40.6	1
MJ4FX0	Aluminum	mg/kg	9220	1
MJ4FX0	Arsenic	mg/kg	7.1	1
MJ4FX0	Barium	mg/kg	87.4	1
MJ4FX0	Beryllium	mg/kg	0.86	1
MJ4FX0	Cadmium	mg/kg	0.46	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FX0	Calcium	mg/kg	16200	1
MJ4FX0	Chromium	mg/kg	25.6	1
MJ4FX0	Cobalt	mg/kg	8.7	1
MJ4FX0	Copper	mg/kg	21.6	1
MJ4FX0	Iron	mg/kg	20100	1
MJ4FX0	Lead	mg/kg	22.6	1
MJ4FX0	Magnesium	mg/kg	7040	1
MJ4FX0	Manganese	mg/kg	349	1
MJ4FX0	Mercury	mg/kg	0.049	1
MJ4FX0	Nickel	mg/kg	22.8	1
MJ4FX0	Potassium	mg/kg	1430	1
MJ4FX0	Selenium	mg/kg	2.4	1
MJ4FX0	Sodium	mg/kg	213	1
MJ4FX0	Vanadium	mg/kg	30.8	1
MJ4FX0	Zinc	mg/kg	75.3	1
MJ4FX2	Aluminum	mg/kg	9130	1
MJ4FX2	Arsenic	mg/kg	6.2	1
MJ4FX2	Barium	mg/kg	90.7	1
MJ4FX2	Beryllium	mg/kg	1.5	1
MJ4FX2	Cadmium	mg/kg	0.28	1
MJ4FX2	Calcium	mg/kg	1920	1
MJ4FX2	Chromium	mg/kg	13.7	1
MJ4FX2	Cobalt	mg/kg	6.8	1
MJ4FX2	Copper	mg/kg	10.8	1
MJ4FX2	Iron	mg/kg	19700	1
MJ4FX2	Lead	mg/kg	7.9	1
MJ4FX2	Magnesium	mg/kg	2540	1
MJ4FX2	Manganese	mg/kg	222	1
MJ4FX2	Mercury	mg/kg	0.013	0
MJ4FX2	Nickel	mg/kg	9.8	1
MJ4FX2	Potassium	mg/kg	807	1
MJ4FX2	Selenium	mg/kg	2.3	1
MJ4FX2	Silver	mg/kg	1	0
MJ4FX2	Sodium	mg/kg	75.2	1
MJ4FX2	Vanadium	mg/kg	25.6	1
MJ4FX2	Zinc	mg/kg	43	1
MJ4FX4	Aluminum	mg/kg	6260	1
MJ4FX4	Arsenic	mg/kg	2.6	1
MJ4FX4	Barium	mg/kg	58.5	1
MJ4FX4	Beryllium	mg/kg	0.68	1
MJ4FX4	Cadmium	mg/kg	0.052	1
MJ4FX4	Calcium	mg/kg	3460	1
MJ4FX4	Chromium	mg/kg	8.9	1
MJ4FX4	Cobalt	mg/kg	5.1	1
MJ4FX4	Copper	mg/kg	8.6	1
MJ4FX4	Iron	mg/kg	14400	1
MJ4FX4	Lead	mg/kg	6.4	1
MJ4FX4	Magnesium	mg/kg	5080	1
MJ4FX4	Manganese	mg/kg	221	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FX4	Mercury	mg/kg	0.012	0
MJ4FX4	Nickel	mg/kg	6.9	1
MJ4FX4	Potassium	mg/kg	1140	1
MJ4FX4	Selenium	mg/kg	2.1	1
MJ4FX4	Silver	mg/kg	0.99	0
MJ4FX4	Sodium	mg/kg	56.3	1
MJ4FX4	Vanadium	mg/kg	18.2	1
MJ4FX4	Zinc	mg/kg	39.4	1
MJ4FY4	Aluminum	mg/kg	8380	1
MJ4FY4	Arsenic	mg/kg	3.1	1
MJ4FY4	Barium	mg/kg	84.6	1
MJ4FY4	Beryllium	mg/kg	0.76	1
MJ4FY4	Cadmium	mg/kg	0.079	1
MJ4FY4	Calcium	mg/kg	2230	1
MJ4FY4	Chromium	mg/kg	11.2	1
MJ4FY4	Cobalt	mg/kg	5.6	1
MJ4FY4	Copper	mg/kg	9.5	1
MJ4FY4	Iron	mg/kg	13600	1
MJ4FY4	Lead	mg/kg	6.2	1
MJ4FY4	Magnesium	mg/kg	3560	1
MJ4FY4	Manganese	mg/kg	221	1
MJ4FY4	Mercury	mg/kg	0.011	0
MJ4FY4	Nickel	mg/kg	9.6	1
MJ4FY4	Potassium	mg/kg	1440	1
MJ4FY4	Selenium	mg/kg	1.6	1
MJ4FY4	Silver	mg/kg	1.2	0
MJ4FY4	Sodium	mg/kg	111	1
MJ4FY4	Vanadium	mg/kg	19.1	1
MJ4FY4	Zinc	mg/kg	37.1	1
MJ4FY5	Aluminum	mg/kg	9270	1
MJ4FY5	Arsenic	mg/kg	9	1
MJ4FY5	Barium	mg/kg	60.7	1
MJ4FY5	Beryllium	mg/kg	0.66	1
MJ4FY5	Cadmium	mg/kg	0.16	1
MJ4FY5	Calcium	mg/kg	2660	1
MJ4FY5	Chromium	mg/kg	11.2	1
MJ4FY5	Cobalt	mg/kg	5.2	1
MJ4FY5	Copper	mg/kg	9.5	1
MJ4FY5	Iron	mg/kg	17000	1
MJ4FY5	Lead	mg/kg	8.8	1
MJ4FY5	Magnesium	mg/kg	6700	1
MJ4FY5	Manganese	mg/kg	276	1
MJ4FY5	Mercury	mg/kg	0.009	0
MJ4FY5	Nickel	mg/kg	9.4	1
MJ4FY5	Potassium	mg/kg	1580	1
MJ4FY5	Selenium	mg/kg	3.4	1
MJ4FY5	Silver	mg/kg	0.91	0
MJ4FY5	Sodium	mg/kg	119	1
MJ4FY5	Vanadium	mg/kg	15.9	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FY5	Zinc	mg/kg	67.4	1
MJ4FY6	Aluminum	mg/kg	6520	1
MJ4FY6	Arsenic	mg/kg	5.2	1
MJ4FY6	Barium	mg/kg	46.7	1
MJ4FY6	Beryllium	mg/kg	0.53	1
MJ4FY6	Cadmium	mg/kg	0.038	1
MJ4FY6	Calcium	mg/kg	10700	1
MJ4FY6	Chromium	mg/kg	9.9	1
MJ4FY6	Cobalt	mg/kg	4.5	1
MJ4FY6	Copper	mg/kg	9.6	1
MJ4FY6	Iron	mg/kg	14200	1
MJ4FY6	Lead	mg/kg	5.3	1
MJ4FY6	Magnesium	mg/kg	6540	1
MJ4FY6	Manganese	mg/kg	277	1
MJ4FY6	Mercury	mg/kg	0.009	0
MJ4FY6	Nickel	mg/kg	8.8	1
MJ4FY6	Potassium	mg/kg	1190	1
MJ4FY6	Selenium	mg/kg	3	1
MJ4FY6	Silver	mg/kg	0.88	0
MJ4FY6	Sodium	mg/kg	113	1
MJ4FY6	Vanadium	mg/kg	15.2	1
MJ4FY6	Zinc	mg/kg	38.8	1
MJ4FY7	Aluminum	mg/kg	5630	1
MJ4FY7	Arsenic	mg/kg	3.7	1
MJ4FY7	Barium	mg/kg	38.4	1
MJ4FY7	Beryllium	mg/kg	0.47	1
MJ4FY7	Cadmium	mg/kg	0.084	1
MJ4FY7	Calcium	mg/kg	3220	1
MJ4FY7	Chromium	mg/kg	8.4	1
MJ4FY7	Cobalt	mg/kg	4.3	1
MJ4FY7	Copper	mg/kg	6	1
MJ4FY7	Iron	mg/kg	12000	1
MJ4FY7	Lead	mg/kg	5.7	1
MJ4FY7	Magnesium	mg/kg	4340	1
MJ4FY7	Manganese	mg/kg	171	1
MJ4FY7	Mercury	mg/kg	0.007	0
MJ4FY7	Nickel	mg/kg	7.2	1
MJ4FY7	Potassium	mg/kg	1020	1
MJ4FY7	Selenium	mg/kg	2.3	1
MJ4FY7	Silver	mg/kg	0.81	0
MJ4FY7	Sodium	mg/kg	95.4	1
MJ4FY7	Vanadium	mg/kg	14.3	1
MJ4FY7	Zinc	mg/kg	47.7	1
MJ4FZ0	Aluminum	mg/kg	6820	1
MJ4FZ0	Arsenic	mg/kg	9.1	1
MJ4FZ0	Barium	mg/kg	59.1	1
MJ4FZ0	Beryllium	mg/kg	0.51	1
MJ4FZ0	Cadmium	mg/kg	0.49	0
MJ4FZ0	Calcium	mg/kg	11900	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4FZ0	Chromium	mg/kg	9.1	1
MJ4FZ0	Cobalt	mg/kg	4.6	1
MJ4FZ0	Copper	mg/kg	8.1	1
MJ4FZ0	Iron	mg/kg	14100	1
MJ4FZ0	Lead	mg/kg	5.8	1
MJ4FZ0	Magnesium	mg/kg	6940	1
MJ4FZ0	Manganese	mg/kg	318	1
MJ4FZ0	Mercury	mg/kg	0.006	1
MJ4FZ0	Nickel	mg/kg	8.2	1
MJ4FZ0	Potassium	mg/kg	1420	1
MJ4FZ0	Selenium	mg/kg	4.1	1
MJ4FZ0	Silver	mg/kg	0.98	0
MJ4FZ0	Sodium	mg/kg	79.3	1
MJ4FZ0	Vanadium	mg/kg	14.8	1
MJ4FZ0	Zinc	mg/kg	36.3	1
MJ4FZ1	Aluminum	mg/kg	10900	1
MJ4FZ1	Arsenic	mg/kg	3.9	1
MJ4FZ1	Barium	mg/kg	109	1
MJ4FZ1	Beryllium	mg/kg	1.1	1
MJ4FZ1	Cadmium	mg/kg	0.64	1
MJ4FZ1	Calcium	mg/kg	6810	1
MJ4FZ1	Chromium	mg/kg	16.9	1
MJ4FZ1	Cobalt	mg/kg	9.5	1
MJ4FZ1	Copper	mg/kg	20.1	1
MJ4FZ1	Iron	mg/kg	20000	1
MJ4FZ1	Lead	mg/kg	13.9	1
MJ4FZ1	Magnesium	mg/kg	7630	1
MJ4FZ1	Manganese	mg/kg	324	1
MJ4FZ1	Mercury	mg/kg	0.026	0
MJ4FZ1	Nickel	mg/kg	15.1	1
MJ4FZ1	Potassium	mg/kg	2250	1
MJ4FZ1	Selenium	mg/kg	5.7	1
MJ4FZ1	Sodium	mg/kg	177	1
MJ4FZ1	Vanadium	mg/kg	24.6	1
MJ4FZ1	Zinc	mg/kg	101	1
MJ4FZ4	Aluminum	mg/kg	6840	1
MJ4FZ4	Arsenic	mg/kg	8.3	1
MJ4FZ4	Barium	mg/kg	93	1
MJ4FZ4	Beryllium	mg/kg	0.67	1
MJ4FZ4	Cadmium	mg/kg	0.044	1
MJ4FZ4	Calcium	mg/kg	12400	1
MJ4FZ4	Chromium	mg/kg	10.1	1
MJ4FZ4	Cobalt	mg/kg	6	1
MJ4FZ4	Copper	mg/kg	11.3	1
MJ4FZ4	Iron	mg/kg	14800	1
MJ4FZ4	Lead	mg/kg	7.9	1
MJ4FZ4	Magnesium	mg/kg	6270	1
MJ4FZ4	Manganese	mg/kg	324	1
MJ4FZ4	Mercury	mg/kg	0.011	0

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
MJ4FZ4	Nickel	mg/kg	8.7	1
MJ4FZ4	Potassium	mg/kg	1780	1
MJ4FZ4	Selenium	mg/kg	3.1	1
MJ4FZ4	Silver	mg/kg	1	0
MJ4FZ4	Sodium	mg/kg	75.8	1
MJ4FZ4	Vanadium	mg/kg	16.9	1
MJ4FZ4	Zinc	mg/kg	41.1	1
MJ4G01	Aluminum	mg/kg	7110	1
MJ4G01	Arsenic	mg/kg	2.9	1
MJ4G01	Barium	mg/kg	74.5	1
MJ4G01	Beryllium	mg/kg	0.49	1
MJ4G01	Cadmium	mg/kg	0.36	1
MJ4G01	Calcium	mg/kg	1590	1
MJ4G01	Chromium	mg/kg	13.2	1
MJ4G01	Cobalt	mg/kg	5	1
MJ4G01	Copper	mg/kg	10.1	1
MJ4G01	Iron	mg/kg	12600	1
MJ4G01	Lead	mg/kg	17	1
MJ4G01	Magnesium	mg/kg	3280	1
MJ4G01	Manganese	mg/kg	336	1
MJ4G01	Mercury	mg/kg	0.037	1
MJ4G01	Nickel	mg/kg	11.8	1
MJ4G01	Potassium	mg/kg	1010	1
MJ4G01	Selenium	mg/kg	2.8	1
MJ4G01	Silver	mg/kg	1.2	0
MJ4G01	Sodium	mg/kg	80.3	1
MJ4G01	Vanadium	mg/kg	15.9	1
MJ4G01	Zinc	mg/kg	73.5	1
MJ4G02	Aluminum	mg/kg	8050	1
MJ4G02	Arsenic	mg/kg	3.7	1
MJ4G02	Barium	mg/kg	72.6	1
MJ4G02	Beryllium	mg/kg	0.58	1
MJ4G02	Cadmium	mg/kg	0.57	1
MJ4G02	Calcium	mg/kg	2120	1
MJ4G02	Chromium	mg/kg	16.3	1
MJ4G02	Cobalt	mg/kg	6.3	1
MJ4G02	Copper	mg/kg	12.2	1
MJ4G02	Iron	mg/kg	15700	1
MJ4G02	Lead	mg/kg	24.7	1
MJ4G02	Magnesium	mg/kg	4000	1
MJ4G02	Manganese	mg/kg	392	1
MJ4G02	Mercury	mg/kg	0.02	1
MJ4G02	Nickel	mg/kg	14.8	1
MJ4G02	Potassium	mg/kg	1160	1
MJ4G02	Selenium	mg/kg	3	1
MJ4G02	Silver	mg/kg	0.99	0
MJ4G02	Sodium	mg/kg	99.2	1
MJ4G02	Vanadium	mg/kg	20.1	1
MJ4G02	Zinc	mg/kg	165	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4G03	Aluminum	mg/kg	7540	1
MJ4G03	Arsenic	mg/kg	4.5	1
MJ4G03	Barium	mg/kg	70.7	1
MJ4G03	Beryllium	mg/kg	0.56	1
MJ4G03	Cadmium	mg/kg	0.086	0
MJ4G03	Calcium	mg/kg	2370	1
MJ4G03	Chromium	mg/kg	17.6	1
MJ4G03	Cobalt	mg/kg	6.7	1
MJ4G03	Copper	mg/kg	14.2	1
MJ4G03	Iron	mg/kg	16400	1
MJ4G03	Lead	mg/kg	8.3	1
MJ4G03	Magnesium	mg/kg	4080	1
MJ4G03	Manganese	mg/kg	285	1
MJ4G03	Mercury	mg/kg	0.007	1
MJ4G03	Nickel	mg/kg	16.5	1
MJ4G03	Potassium	mg/kg	1150	1
MJ4G03	Selenium	mg/kg	3	1
MJ4G03	Silver	mg/kg	0.96	0
MJ4G03	Sodium	mg/kg	76	1
MJ4G03	Vanadium	mg/kg	22	1
MJ4G03	Zinc	mg/kg	46.6	1
MJ4G05	Aluminum	mg/kg	8130	1
MJ4G05	Arsenic	mg/kg	8.7	1
MJ4G05	Barium	mg/kg	74.4	1
MJ4G05	Beryllium	mg/kg	0.55	1
MJ4G05	Cadmium	mg/kg	0.46	0
MJ4G05	Calcium	mg/kg	16200	1
MJ4G05	Chromium	mg/kg	9.7	1
MJ4G05	Cobalt	mg/kg	4.2	1
MJ4G05	Copper	mg/kg	8.9	1
MJ4G05	Iron	mg/kg	15800	1
MJ4G05	Lead	mg/kg	5.6	1
MJ4G05	Magnesium	mg/kg	7980	1
MJ4G05	Manganese	mg/kg	276	1
MJ4G05	Mercury	mg/kg	0.1	0
MJ4G05	Nickel	mg/kg	9.2	1
MJ4G05	Potassium	mg/kg	1600	1
MJ4G05	Selenium	mg/kg	3.5	1
MJ4G05	Silver	mg/kg	0.91	0
MJ4G05	Sodium	mg/kg	78.1	1
MJ4G05	Vanadium	mg/kg	13.7	1
MJ4G05	Zinc	mg/kg	36.1	1
MJ4G08	Aluminum	mg/kg	8650	1
MJ4G08	Arsenic	mg/kg	10.8	1
MJ4G08	Barium	mg/kg	60.1	1
MJ4G08	Beryllium	mg/kg	0.6	1
MJ4G08	Cadmium	mg/kg	0.48	0
MJ4G08	Calcium	mg/kg	4590	1
MJ4G08	Chromium	mg/kg	10.2	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4G08	Cobalt	mg/kg	4.4	1
MJ4G08	Copper	mg/kg	8.2	1
MJ4G08	Iron	mg/kg	15900	1
MJ4G08	Lead	mg/kg	6.8	1
MJ4G08	Magnesium	mg/kg	6920	1
MJ4G08	Manganese	mg/kg	267	1
MJ4G08	Mercury	mg/kg	0.004	1
MJ4G08	Nickel	mg/kg	8.5	1
MJ4G08	Potassium	mg/kg	1620	1
MJ4G08	Selenium	mg/kg	3.8	1
MJ4G08	Silver	mg/kg	0.96	0
MJ4G08	Sodium	mg/kg	73.9	1
MJ4G08	Vanadium	mg/kg	14.2	1
MJ4G08	Zinc	mg/kg	46.1	1
MJ4G12	Aluminum	mg/kg	7400	1
MJ4G12	Arsenic	mg/kg	7	1
MJ4G12	Barium	mg/kg	75.7	1
MJ4G12	Beryllium	mg/kg	0.73	1
MJ4G12	Cadmium	mg/kg	0.5	0
MJ4G12	Calcium	mg/kg	10000	1
MJ4G12	Chromium	mg/kg	11.1	1
MJ4G12	Cobalt	mg/kg	6	1
MJ4G12	Copper	mg/kg	9.7	1
MJ4G12	Iron	mg/kg	16700	1
MJ4G12	Lead	mg/kg	7.5	1
MJ4G12	Magnesium	mg/kg	6280	1
MJ4G12	Manganese	mg/kg	339	1
MJ4G12	Mercury	mg/kg	0.11	0
MJ4G12	Nickel	mg/kg	9.4	1
MJ4G12	Potassium	mg/kg	1540	1
MJ4G12	Selenium	mg/kg	3.4	1
MJ4G12	Silver	mg/kg	1	0
MJ4G12	Sodium	mg/kg	98.7	1
MJ4G12	Vanadium	mg/kg	19.3	1
MJ4G12	Zinc	mg/kg	45.8	1
MJ4G15	Aluminum	mg/kg	10500	1
MJ4G15	Arsenic	mg/kg	14.6	1
MJ4G15	Barium	mg/kg	127	1
MJ4G15	Beryllium	mg/kg	1	1
MJ4G15	Cadmium	mg/kg	0.53	0
MJ4G15	Calcium	mg/kg	13200	1
MJ4G15	Chromium	mg/kg	17.2	1
MJ4G15	Cobalt	mg/kg	8.7	1
MJ4G15	Copper	mg/kg	16.4	1
MJ4G15	Iron	mg/kg	21700	1
MJ4G15	Lead	mg/kg	12.1	1
MJ4G15	Magnesium	mg/kg	7420	1
MJ4G15	Manganese	mg/kg	444	1
MJ4G15	Mercury	mg/kg	0.005	1

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Sample ID	Analyte	Unit	Value	Detect
MJ4G15	Nickel	mg/kg	15.8	1
MJ4G15	Potassium	mg/kg	2020	1
MJ4G15	Selenium	mg/kg	3.4	1
MJ4G15	Silver	mg/kg	1.1	0
MJ4G15	Sodium	mg/kg	134	1
MJ4G15	Vanadium	mg/kg	26	1
MJ4G15	Zinc	mg/kg	60.5	1
MJ4G16	Aluminum	mg/kg	7040	1
MJ4G16	Arsenic	mg/kg	5.7	1
MJ4G16	Barium	mg/kg	53	1
MJ4G16	Beryllium	mg/kg	0.62	1
MJ4G16	Cadmium	mg/kg	0.047	0
MJ4G16	Calcium	mg/kg	4160	1
MJ4G16	Chromium	mg/kg	11.2	1
MJ4G16	Cobalt	mg/kg	4.5	1
MJ4G16	Copper	mg/kg	8.3	1
MJ4G16	Iron	mg/kg	15400	1
MJ4G16	Lead	mg/kg	6.8	1
MJ4G16	Magnesium	mg/kg	5280	1
MJ4G16	Manganese	mg/kg	227	1
MJ4G16	Mercury	mg/kg	0.004	1
MJ4G16	Nickel	mg/kg	8.3	1
MJ4G16	Potassium	mg/kg	1250	1
MJ4G16	Selenium	mg/kg	2.7	1
MJ4G16	Silver	mg/kg	0.94	0
MJ4G16	Sodium	mg/kg	94.3	1
MJ4G16	Vanadium	mg/kg	18.8	1
MJ4G16	Zinc	mg/kg	43.9	1
MJ4G18	Aluminum	mg/kg	6770	1
MJ4G18	Arsenic	mg/kg	4	1
MJ4G18	Barium	mg/kg	48.4	1
MJ4G18	Beryllium	mg/kg	0.54	1
MJ4G18	Cadmium	mg/kg	0.077	0
MJ4G18	Calcium	mg/kg	2240	1
MJ4G18	Chromium	mg/kg	12.5	1
MJ4G18	Cobalt	mg/kg	4.5	1
MJ4G18	Copper	mg/kg	7.6	1
MJ4G18	Iron	mg/kg	13900	1
MJ4G18	Lead	mg/kg	6.1	1
MJ4G18	Magnesium	mg/kg	5450	1
MJ4G18	Manganese	mg/kg	200	1
MJ4G18	Mercury	mg/kg	0.004	1
MJ4G18	Nickel	mg/kg	10.7	1
MJ4G18	Potassium	mg/kg	959	1
MJ4G18	Selenium	mg/kg	3.3	1
MJ4G18	Silver	mg/kg	0.94	0
MJ4G18	Sodium	mg/kg	114	1
MJ4G18	Vanadium	mg/kg	16.7	1
MJ4G18	Zinc	mg/kg	59.5	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4G19	Aluminum	mg/kg	9510	1
MJ4G19	Arsenic	mg/kg	9.6	1
MJ4G19	Barium	mg/kg	77.2	1
MJ4G19	Beryllium	mg/kg	0.84	1
MJ4G19	Cadmium	mg/kg	0.48	0
MJ4G19	Calcium	mg/kg	12800	1
MJ4G19	Chromium	mg/kg	12.2	1
MJ4G19	Cobalt	mg/kg	6.9	1
MJ4G19	Copper	mg/kg	12.2	1
MJ4G19	Iron	mg/kg	18000	1
MJ4G19	Lead	mg/kg	9.3	1
MJ4G19	Magnesium	mg/kg	7580	1
MJ4G19	Manganese	mg/kg	410	1
MJ4G19	Mercury	mg/kg	0.004	1
MJ4G19	Nickel	mg/kg	10.7	1
MJ4G19	Potassium	mg/kg	1900	1
MJ4G19	Selenium	mg/kg	2.6	1
MJ4G19	Sodium	mg/kg	156	1
MJ4G19	Vanadium	mg/kg	19.3	1
MJ4G19	Zinc	mg/kg	44.5	1
MJ4G21	Aluminum	mg/kg	7470	1
MJ4G21	Arsenic	mg/kg	11.7	1
MJ4G21	Barium	mg/kg	46.2	1
MJ4G21	Beryllium	mg/kg	0.54	1
MJ4G21	Cadmium	mg/kg	0.46	0
MJ4G21	Calcium	mg/kg	12800	1
MJ4G21	Chromium	mg/kg	9.5	1
MJ4G21	Cobalt	mg/kg	4.1	1
MJ4G21	Copper	mg/kg	9.1	1
MJ4G21	Iron	mg/kg	14100	1
MJ4G21	Lead	mg/kg	6	1
MJ4G21	Magnesium	mg/kg	7600	1
MJ4G21	Manganese	mg/kg	284	1
MJ4G21	Mercury	mg/kg	0.1	0
MJ4G21	Nickel	mg/kg	8.9	1
MJ4G21	Potassium	mg/kg	1510	1
MJ4G21	Selenium	mg/kg	2.2	1
MJ4G21	Sodium	mg/kg	98.1	1
MJ4G21	Vanadium	mg/kg	12.9	1
MJ4G21	Zinc	mg/kg	33.9	1
MJ4G22	Aluminum	mg/kg	7220	1
MJ4G22	Arsenic	mg/kg	6.6	1
MJ4G22	Barium	mg/kg	54.1	1
MJ4G22	Beryllium	mg/kg	0.58	1
MJ4G22	Cadmium	mg/kg	0.08	1
MJ4G22	Calcium	mg/kg	5680	1
MJ4G22	Chromium	mg/kg	9.4	1
MJ4G22	Cobalt	mg/kg	4.6	1
MJ4G22	Copper	mg/kg	11.8	1

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Sample ID	Analyte	Unit	Value	Detect
MJ4G22	Iron	mg/kg	13700	1
MJ4G22	Lead	mg/kg	9	1
MJ4G22	Magnesium	mg/kg	5530	1
MJ4G22	Manganese	mg/kg	251	1
MJ4G22	Mercury	mg/kg	0.036	1
MJ4G22	Nickel	mg/kg	8.5	1
MJ4G22	Potassium	mg/kg	1620	1
MJ4G22	Selenium	mg/kg	2.4	1
MJ4G22	Silver	mg/kg	1	0
MJ4G22	Sodium	mg/kg	77.8	1
MJ4G22	Vanadium	mg/kg	12.8	1
MJ4G22	Zinc	mg/kg	38.4	1
MJ4G23	Aluminum	mg/kg	8230	1
MJ4G23	Arsenic	mg/kg	6	1
MJ4G23	Barium	mg/kg	55.5	1
MJ4G23	Beryllium	mg/kg	0.64	1
MJ4G23	Cadmium	mg/kg	0.52	0
MJ4G23	Calcium	mg/kg	4490	1
MJ4G23	Chromium	mg/kg	10.1	1
MJ4G23	Cobalt	mg/kg	5.1	1
MJ4G23	Copper	mg/kg	10.3	1
MJ4G23	Iron	mg/kg	15400	1
MJ4G23	Lead	mg/kg	6.7	1
MJ4G23	Magnesium	mg/kg	6040	1
MJ4G23	Manganese	mg/kg	281	1
MJ4G23	Mercury	mg/kg	0.01	0
MJ4G23	Nickel	mg/kg	8.8	1
MJ4G23	Potassium	mg/kg	1730	1
MJ4G23	Selenium	mg/kg	2.7	1
MJ4G23	Silver	mg/kg	1	0
MJ4G23	Sodium	mg/kg	66	1
MJ4G23	Vanadium	mg/kg	14.5	1
MJ4G23	Zinc	mg/kg	37.5	1
MJ4G24	Aluminum	mg/kg	7660	1
MJ4G24	Arsenic	mg/kg	6	1
MJ4G24	Barium	mg/kg	52.3	1
MJ4G24	Beryllium	mg/kg	0.57	1
MJ4G24	Cadmium	mg/kg	0.053	1
MJ4G24	Calcium	mg/kg	3850	1
MJ4G24	Chromium	mg/kg	10	1
MJ4G24	Cobalt	mg/kg	5.1	1
MJ4G24	Copper	mg/kg	9.2	1
MJ4G24	Iron	mg/kg	14200	1
MJ4G24	Lead	mg/kg	6.5	1
MJ4G24	Magnesium	mg/kg	5770	1
MJ4G24	Manganese	mg/kg	283	1
MJ4G24	Mercury	mg/kg	0.01	0
MJ4G24	Nickel	mg/kg	8.7	1
MJ4G24	Potassium	mg/kg	1570	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
MJ4G24	Selenium	mg/kg	2.3	1
MJ4G24	Silver	mg/kg	0.86	0
MJ4G24	Sodium	mg/kg	62.7	1
MJ4G24	Vanadium	mg/kg	14	1
MJ4G24	Zinc	mg/kg	35.3	1
MJ4G25	Aluminum	mg/kg	8160	1
MJ4G25	Arsenic	mg/kg	7.4	1
MJ4G25	Barium	mg/kg	60.7	1
MJ4G25	Beryllium	mg/kg	0.67	1
MJ4G25	Cadmium	mg/kg	0.051	1
MJ4G25	Calcium	mg/kg	2500	1
MJ4G25	Chromium	mg/kg	10.2	1
MJ4G25	Cobalt	mg/kg	4.9	1
MJ4G25	Copper	mg/kg	9.9	1
MJ4G25	Iron	mg/kg	15300	1
MJ4G25	Lead	mg/kg	7.1	1
MJ4G25	Magnesium	mg/kg	5800	1
MJ4G25	Manganese	mg/kg	276	1
MJ4G25	Mercury	mg/kg	0.007	0
MJ4G25	Nickel	mg/kg	8.6	1
MJ4G25	Potassium	mg/kg	1810	1
MJ4G25	Selenium	mg/kg	3	1
MJ4G25	Silver	mg/kg	1.1	0
MJ4G25	Sodium	mg/kg	71.4	1
MJ4G25	Vanadium	mg/kg	15.3	1
MJ4G25	Zinc	mg/kg	39.8	1
MJ4G26	Aluminum	mg/kg	7290	1
MJ4G26	Arsenic	mg/kg	5.8	1
MJ4G26	Barium	mg/kg	57.6	1
MJ4G26	Beryllium	mg/kg	0.59	1
MJ4G26	Cadmium	mg/kg	0.05	1
MJ4G26	Calcium	mg/kg	2060	1
MJ4G26	Chromium	mg/kg	9.8	1
MJ4G26	Cobalt	mg/kg	4.8	1
MJ4G26	Copper	mg/kg	9.2	1
MJ4G26	Iron	mg/kg	13900	1
MJ4G26	Lead	mg/kg	6.6	1
MJ4G26	Magnesium	mg/kg	5020	1
MJ4G26	Manganese	mg/kg	270	1
MJ4G26	Mercury	mg/kg	0.004	0
MJ4G26	Nickel	mg/kg	8.8	1
MJ4G26	Potassium	mg/kg	1760	1
MJ4G26	Selenium	mg/kg	2.3	1
MJ4G26	Silver	mg/kg	0.95	0
MJ4G26	Sodium	mg/kg	62.2	1
MJ4G26	Vanadium	mg/kg	13.7	1
MJ4G26	Zinc	mg/kg	35.5	1
MJ4G27	Aluminum	mg/kg	6390	1
MJ4G27	Arsenic	mg/kg	6.3	1

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Sample ID	Analyte	Unit	Value	Detect
MJ4G27	Barium	mg/kg	39.4	1
MJ4G27	Beryllium	mg/kg	0.49	1
MJ4G27	Cadmium	mg/kg	0.51	0
MJ4G27	Calcium	mg/kg	10100	1
MJ4G27	Chromium	mg/kg	9	1
MJ4G27	Cobalt	mg/kg	4.1	1
MJ4G27	Copper	mg/kg	9.3	1
MJ4G27	Iron	mg/kg	13400	1
MJ4G27	Lead	mg/kg	5.2	1
MJ4G27	Magnesium	mg/kg	5440	1
MJ4G27	Manganese	mg/kg	230	1
MJ4G27	Mercury	mg/kg	0.008	0
MJ4G27	Nickel	mg/kg	8.3	1
MJ4G27	Potassium	mg/kg	1150	1
MJ4G27	Selenium	mg/kg	2.5	1
MJ4G27	Silver	mg/kg	1	0
MJ4G27	Sodium	mg/kg	68.8	1
MJ4G27	Vanadium	mg/kg	12.6	1
MJ4G27	Zinc	mg/kg	30	1
MJ4G37	Aluminum	mg/kg	11300	1
MJ4G37	Arsenic	mg/kg	4.6	1
MJ4G37	Barium	mg/kg	98.8	1
MJ4G37	Beryllium	mg/kg	0.98	1
MJ4G37	Cadmium	mg/kg	0.11	1
MJ4G37	Calcium	mg/kg	2680	1
MJ4G37	Chromium	mg/kg	16.6	1
MJ4G37	Cobalt	mg/kg	8.1	1
MJ4G37	Copper	mg/kg	15.4	1
MJ4G37	Iron	mg/kg	17300	1
MJ4G37	Lead	mg/kg	8.9	1
MJ4G37	Magnesium	mg/kg	5350	1
MJ4G37	Manganese	mg/kg	344	1
MJ4G37	Mercury	mg/kg	0.009	1
MJ4G37	Nickel	mg/kg	14.4	1
MJ4G37	Potassium	mg/kg	3060	1
MJ4G37	Selenium	mg/kg	2.6	1
MJ4G37	Sodium	mg/kg	319	1
MJ4G37	Vanadium	mg/kg	28.6	1
MJ4G37	Zinc	mg/kg	48.3	1
REF001-SE-1-092819	Aluminum	mg/kg	3890	1
REF001-SE-1-092819	Antimony	mg/kg	0.04	0
REF001-SE-1-092819	Arsenic	mg/kg	1.3	1
REF001-SE-1-092819	Barium	mg/kg	27.9	1
REF001-SE-1-092819	Beryllium	mg/kg	0.176	1
REF001-SE-1-092819	Cadmium	mg/kg	0.14	1
REF001-SE-1-092819	Calcium	mg/kg	1940	1
REF001-SE-1-092819	Chromium	mg/kg	4.95	1
REF001-SE-1-092819	Cobalt	mg/kg	2.39	1
REF001-SE-1-092819	Copper	mg/kg	4.89	1

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Sample ID	Analyte	Unit	Value	Detect
REF001-SE-1-092819	Iron	mg/kg	8080	1
REF001-SE-1-092819	Lead	mg/kg	6.8	1
REF001-SE-1-092819	Magnesium	mg/kg	2360	1
REF001-SE-1-092819	Manganese	mg/kg	175	1
REF001-SE-1-092819	Mercury	mg/kg	0.002	0
REF001-SE-1-092819	Nickel	mg/kg	6.03	1
REF001-SE-1-092819	Potassium	mg/kg	541	1
REF001-SE-1-092819	Selenium	mg/kg	0.2	0
REF001-SE-1-092819	Silver	mg/kg	0.025	1
REF001-SE-1-092819	Sodium	mg/kg	129	1
REF001-SE-1-092819	Thallium	mg/kg	0.049	0
REF001-SE-1-092819	Vanadium	mg/kg	14	1
REF001-SE-1-092819	Zinc	mg/kg	27.8	1
REF002-SE-1-092819	Aluminum	mg/kg	2730	1
REF002-SE-1-092819	Antimony	mg/kg	0.033	0
REF002-SE-1-092819	Arsenic	mg/kg	0.83	1
REF002-SE-1-092819	Barium	mg/kg	21.2	1
REF002-SE-1-092819	Beryllium	mg/kg	0.135	1
REF002-SE-1-092819	Cadmium	mg/kg	0.089	1
REF002-SE-1-092819	Calcium	mg/kg	1580	1
REF002-SE-1-092819	Chromium	mg/kg	5.88	1
REF002-SE-1-092819	Cobalt	mg/kg	1.74	1
REF002-SE-1-092819	Copper	mg/kg	3.36	1
REF002-SE-1-092819	Iron	mg/kg	5670	1
REF002-SE-1-092819	Lead	mg/kg	3.5	1
REF002-SE-1-092819	Magnesium	mg/kg	1800	1
REF002-SE-1-092819	Manganese	mg/kg	112	1
REF002-SE-1-092819	Mercury	mg/kg	0.002	0
REF002-SE-1-092819	Nickel	mg/kg	5.36	1
REF002-SE-1-092819	Potassium	mg/kg	438	1
REF002-SE-1-092819	Selenium	mg/kg	0.1	0
REF002-SE-1-092819	Silver	mg/kg	0.023	1
REF002-SE-1-092819	Sodium	mg/kg	61	1
REF002-SE-1-092819	Thallium	mg/kg	0.032	0
REF002-SE-1-092819	Vanadium	mg/kg	9.37	1
REF002-SE-1-092819	Zinc	mg/kg	23.1	1
REF003-SE-1-092719	Aluminum	mg/kg	2510	1
REF003-SE-1-092719	Antimony	mg/kg	0.05	0
REF003-SE-1-092719	Arsenic	mg/kg	0.7	1
REF003-SE-1-092719	Barium	mg/kg	17.6	1
REF003-SE-1-092719	Beryllium	mg/kg	0.127	1
REF003-SE-1-092719	Cadmium	mg/kg	0.093	1
REF003-SE-1-092719	Calcium	mg/kg	1570	1
REF003-SE-1-092719	Chromium	mg/kg	9.09	1
REF003-SE-1-092719	Cobalt	mg/kg	1.73	1
REF003-SE-1-092719	Copper	mg/kg	3.39	1
REF003-SE-1-092719	Iron	mg/kg	7700	1
REF003-SE-1-092719	Lead	mg/kg	4.57	1
REF003-SE-1-092719	Magnesium	mg/kg	1610	1

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Sample ID	Analyte	Unit	Value	Detect
REF003-SE-1-092719	Manganese	mg/kg	76.2	1
REF003-SE-1-092719	Mercury	mg/kg	0.002	0
REF003-SE-1-092719	Nickel	mg/kg	5.08	1
REF003-SE-1-092719	Potassium	mg/kg	430	1
REF003-SE-1-092719	Selenium	mg/kg	0.2	0
REF003-SE-1-092719	Silver	mg/kg	0.018	1
REF003-SE-1-092719	Sodium	mg/kg	59	1
REF003-SE-1-092719	Thallium	mg/kg	0.035	0
REF003-SE-1-092719	Vanadium	mg/kg	15.8	1
REF003-SE-1-092719	Zinc	mg/kg	26.5	1
REF004-SE-1-092719	Aluminum	mg/kg	4210	1
REF004-SE-1-092719	Antimony	mg/kg	0.204	1
REF004-SE-1-092719	Arsenic	mg/kg	1.94	1
REF004-SE-1-092719	Barium	mg/kg	45.1	1
REF004-SE-1-092719	Beryllium	mg/kg	0.179	1
REF004-SE-1-092719	Cadmium	mg/kg	0.196	1
REF004-SE-1-092719	Calcium	mg/kg	3360	1
REF004-SE-1-092719	Chromium	mg/kg	13	1
REF004-SE-1-092719	Cobalt	mg/kg	3.27	1
REF004-SE-1-092719	Copper	mg/kg	4.98	1
REF004-SE-1-092719	Iron	mg/kg	10200	1
REF004-SE-1-092719	Lead	mg/kg	24.2	1
REF004-SE-1-092719	Magnesium	mg/kg	2840	1
REF004-SE-1-092719	Manganese	mg/kg	145	1
REF004-SE-1-092719	Mercury	mg/kg	0.003	0
REF004-SE-1-092719	Nickel	mg/kg	7.76	1
REF004-SE-1-092719	Potassium	mg/kg	818	1
REF004-SE-1-092719	Selenium	mg/kg	0.1	0
REF004-SE-1-092719	Silver	mg/kg	0.031	1
REF004-SE-1-092719	Sodium	mg/kg	62	1
REF004-SE-1-092719	Thallium	mg/kg	0.065	1
REF004-SE-1-092719	Vanadium	mg/kg	23	1
REF004-SE-1-092719	Zinc	mg/kg	62.5	1
REF005-SE-1-100319	Aluminum	mg/kg	2440	1
REF005-SE-1-100319	Antimony	mg/kg	0.039	0
REF005-SE-1-100319	Arsenic	mg/kg	0.85	1
REF005-SE-1-100319	Barium	mg/kg	22.6	1
REF005-SE-1-100319	Beryllium	mg/kg	0.128	1
REF005-SE-1-100319	Cadmium	mg/kg	0.091	1
REF005-SE-1-100319	Calcium	mg/kg	1550	1
REF005-SE-1-100319	Chromium	mg/kg	7.87	1
REF005-SE-1-100319	Cobalt	mg/kg	2.13	1
REF005-SE-1-100319	Copper	mg/kg	4.95	1
REF005-SE-1-100319	Iron	mg/kg	7720	1
REF005-SE-1-100319	Lead	mg/kg	3.61	1
REF005-SE-1-100319	Magnesium	mg/kg	1800	1
REF005-SE-1-100319	Manganese	mg/kg	79.6	1
REF005-SE-1-100319	Mercury	mg/kg	0.002	0
REF005-SE-1-100319	Nickel	mg/kg	6.01	1

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Sample ID	Analyte	Unit	Value	Detect
REF005-SE-1-100319	Potassium	mg/kg	444	1
REF005-SE-1-100319	Selenium	mg/kg	0.2	0
REF005-SE-1-100319	Silver	mg/kg	0.025	1
REF005-SE-1-100319	Sodium	mg/kg	49	1
REF005-SE-1-100319	Thallium	mg/kg	0.043	1
REF005-SE-1-100319	Vanadium	mg/kg	13.4	1
REF005-SE-1-100319	Zinc	mg/kg	22.9	1
REF006-SE-1-100219	Aluminum	mg/kg	2990	1
REF006-SE-1-100219	Antimony	mg/kg	0.034	0
REF006-SE-1-100219	Arsenic	mg/kg	0.96	1
REF006-SE-1-100219	Barium	mg/kg	32.8	1
REF006-SE-1-100219	Beryllium	mg/kg	0.164	1
REF006-SE-1-100219	Cadmium	mg/kg	0.203	1
REF006-SE-1-100219	Calcium	mg/kg	2000	1
REF006-SE-1-100219	Chromium	mg/kg	9.48	1
REF006-SE-1-100219	Cobalt	mg/kg	2.18	1
REF006-SE-1-100219	Copper	mg/kg	3.77	1
REF006-SE-1-100219	Iron	mg/kg	7680	1
REF006-SE-1-100219	Lead	mg/kg	5.64	1
REF006-SE-1-100219	Magnesium	mg/kg	2210	1
REF006-SE-1-100219	Manganese	mg/kg	96.2	1
REF006-SE-1-100219	Mercury	mg/kg	0.002	0
REF006-SE-1-100219	Nickel	mg/kg	7.86	1
REF006-SE-1-100219	Potassium	mg/kg	599	1
REF006-SE-1-100219	Selenium	mg/kg	0.2	0
REF006-SE-1-100219	Silver	mg/kg	0.025	1
REF006-SE-1-100219	Sodium	mg/kg	56	1
REF006-SE-1-100219	Thallium	mg/kg	0.048	1
REF006-SE-1-100219	Vanadium	mg/kg	12.4	1
REF006-SE-1-100219	Zinc	mg/kg	36.1	1
REF007-SE-1-093019	Aluminum	mg/kg	3410	1
REF007-SE-1-093019	Antimony	mg/kg	0.031	0
REF007-SE-1-093019	Arsenic	mg/kg	1.49	1
REF007-SE-1-093019	Barium	mg/kg	25.3	1
REF007-SE-1-093019	Beryllium	mg/kg	0.142	1
REF007-SE-1-093019	Cadmium	mg/kg	0.104	1
REF007-SE-1-093019	Calcium	mg/kg	1590	1
REF007-SE-1-093019	Chromium	mg/kg	7.21	1
REF007-SE-1-093019	Cobalt	mg/kg	2.27	1
REF007-SE-1-093019	Copper	mg/kg	4.41	1
REF007-SE-1-093019	Iron	mg/kg	7710	1
REF007-SE-1-093019	Lead	mg/kg	5.18	1
REF007-SE-1-093019	Magnesium	mg/kg	2330	1
REF007-SE-1-093019	Manganese	mg/kg	125	1
REF007-SE-1-093019	Mercury	mg/kg	0.002	0
REF007-SE-1-093019	Nickel	mg/kg	6.13	1
REF007-SE-1-093019	Potassium	mg/kg	612	1
REF007-SE-1-093019	Selenium	mg/kg	0.1	0
REF007-SE-1-093019	Silver	mg/kg	0.023	1

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Sample ID	Analyte	Unit	Value	Detect
REF007-SE-1-093019	Sodium	mg/kg	63	1
REF007-SE-1-093019	Thallium	mg/kg	0.043	0
REF007-SE-1-093019	Vanadium	mg/kg	12.6	1
REF007-SE-1-093019	Zinc	mg/kg	33.9	1
REF008-SE-1-093019	Aluminum	mg/kg	2770	1
REF008-SE-1-093019	Antimony	mg/kg	0.034	0
REF008-SE-1-093019	Arsenic	mg/kg	0.95	1
REF008-SE-1-093019	Barium	mg/kg	26.3	1
REF008-SE-1-093019	Beryllium	mg/kg	0.12	1
REF008-SE-1-093019	Cadmium	mg/kg	0.093	1
REF008-SE-1-093019	Calcium	mg/kg	1680	1
REF008-SE-1-093019	Chromium	mg/kg	7.21	1
REF008-SE-1-093019	Cobalt	mg/kg	1.84	1
REF008-SE-1-093019	Copper	mg/kg	3.97	1
REF008-SE-1-093019	Iron	mg/kg	6060	1
REF008-SE-1-093019	Lead	mg/kg	4.18	1
REF008-SE-1-093019	Magnesium	mg/kg	1780	1
REF008-SE-1-093019	Manganese	mg/kg	78.4	1
REF008-SE-1-093019	Mercury	mg/kg	0.002	0
REF008-SE-1-093019	Nickel	mg/kg	5.55	1
REF008-SE-1-093019	Potassium	mg/kg	519	1
REF008-SE-1-093019	Selenium	mg/kg	0.2	0
REF008-SE-1-093019	Silver	mg/kg	0.023	1
REF008-SE-1-093019	Sodium	mg/kg	65	1
REF008-SE-1-093019	Thallium	mg/kg	0.036	0
REF008-SE-1-093019	Vanadium	mg/kg	9.92	1
REF008-SE-1-093019	Zinc	mg/kg	29.7	1
REF009A-SE-1-10021	Aluminum	mg/kg	3040	1
REF009A-SE-1-10021	Antimony	mg/kg	0.027	0
REF009A-SE-1-10021	Arsenic	mg/kg	0.66	1
REF009A-SE-1-10021	Barium	mg/kg	32.2	1
REF009A-SE-1-10021	Beryllium	mg/kg	0.154	1
REF009A-SE-1-10021	Cadmium	mg/kg	0.095	1
REF009A-SE-1-10021	Calcium	mg/kg	1790	1
REF009A-SE-1-10021	Chromium	mg/kg	7.47	1
REF009A-SE-1-10021	Cobalt	mg/kg	2.01	1
REF009A-SE-1-10021	Copper	mg/kg	3.75	1
REF009A-SE-1-10021	Iron	mg/kg	6700	1
REF009A-SE-1-10021	Lead	mg/kg	3.55	1
REF009A-SE-1-10021	Magnesium	mg/kg	2080	1
REF009A-SE-1-10021	Manganese	mg/kg	90.9	1
REF009A-SE-1-10021	Mercury	mg/kg	0.002	0
REF009A-SE-1-10021	Nickel	mg/kg	5.85	1
REF009A-SE-1-10021	Potassium	mg/kg	539	1
REF009A-SE-1-10021	Selenium	mg/kg	0.1	0
REF009A-SE-1-10021	Silver	mg/kg	0.023	1
REF009A-SE-1-10021	Sodium	mg/kg	68	1
REF009A-SE-1-10021	Thallium	mg/kg	0.038	1
REF009A-SE-1-10021	Vanadium	mg/kg	11.1	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
REF009A-SE-1-10021	Zinc	mg/kg	25.3	1
REF010-SE-1-100319	Aluminum	mg/kg	2450	1
REF010-SE-1-100319	Antimony	mg/kg	0.035	0
REF010-SE-1-100319	Arsenic	mg/kg	1.19	1
REF010-SE-1-100319	Barium	mg/kg	37.9	1
REF010-SE-1-100319	Beryllium	mg/kg	0.124	1
REF010-SE-1-100319	Cadmium	mg/kg	0.106	1
REF010-SE-1-100319	Calcium	mg/kg	1740	1
REF010-SE-1-100319	Chromium	mg/kg	7.12	1
REF010-SE-1-100319	Cobalt	mg/kg	1.95	1
REF010-SE-1-100319	Copper	mg/kg	3.76	1
REF010-SE-1-100319	Iron	mg/kg	6720	1
REF010-SE-1-100319	Lead	mg/kg	4.41	1
REF010-SE-1-100319	Magnesium	mg/kg	1810	1
REF010-SE-1-100319	Manganese	mg/kg	112	1
REF010-SE-1-100319	Mercury	mg/kg	0.002	0
REF010-SE-1-100319	Nickel	mg/kg	7.11	1
REF010-SE-1-100319	Potassium	mg/kg	548	1
REF010-SE-1-100319	Selenium	mg/kg	0.2	0
REF010-SE-1-100319	Silver	mg/kg	0.02	1
REF010-SE-1-100319	Sodium	mg/kg	55	1
REF010-SE-1-100319	Thallium	mg/kg	0.041	1
REF010-SE-1-100319	Vanadium	mg/kg	11.7	1
REF010-SE-1-100319	Zinc	mg/kg	24.5	1
REF011-SE-1-100119	Aluminum	mg/kg	2950	1
REF011-SE-1-100119	Antimony	mg/kg	0.04	0
REF011-SE-1-100119	Arsenic	mg/kg	0.9	1
REF011-SE-1-100119	Barium	mg/kg	41	1
REF011-SE-1-100119	Beryllium	mg/kg	0.158	1
REF011-SE-1-100119	Cadmium	mg/kg	0.109	1
REF011-SE-1-100119	Calcium	mg/kg	1830	1
REF011-SE-1-100119	Chromium	mg/kg	8.92	1
REF011-SE-1-100119	Cobalt	mg/kg	2.18	1
REF011-SE-1-100119	Copper	mg/kg	3.36	1
REF011-SE-1-100119	Iron	mg/kg	7260	1
REF011-SE-1-100119	Lead	mg/kg	4.94	1
REF011-SE-1-100119	Magnesium	mg/kg	2050	1
REF011-SE-1-100119	Manganese	mg/kg	94.8	1
REF011-SE-1-100119	Mercury	mg/kg	0.002	0
REF011-SE-1-100119	Nickel	mg/kg	7.05	1
REF011-SE-1-100119	Potassium	mg/kg	583	1
REF011-SE-1-100119	Selenium	mg/kg	0.2	0
REF011-SE-1-100119	Silver	mg/kg	0.0265	1
REF011-SE-1-100119	Sodium	mg/kg	64.5	1
REF011-SE-1-100119	Thallium	mg/kg	0.0505	1
REF011-SE-1-100119	Vanadium	mg/kg	11.2	1
REF011-SE-1-100119	Zinc	mg/kg	36.4	1
REF012-SE-1-100419	Aluminum	mg/kg	3260	1
REF012-SE-1-100419	Antimony	mg/kg	0.04	0

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Sample ID	Analyte	Unit	Value	Detect
REF012-SE-1-100419	Arsenic	mg/kg	1	1
REF012-SE-1-100419	Barium	mg/kg	29.1	1
REF012-SE-1-100419	Beryllium	mg/kg	0.177	1
REF012-SE-1-100419	Cadmium	mg/kg	0.209	1
REF012-SE-1-100419	Calcium	mg/kg	2360	1
REF012-SE-1-100419	Chromium	mg/kg	8.57	1
REF012-SE-1-100419	Cobalt	mg/kg	2.12	1
REF012-SE-1-100419	Copper	mg/kg	3.72	1
REF012-SE-1-100419	Iron	mg/kg	7810	1
REF012-SE-1-100419	Lead	mg/kg	9.72	1
REF012-SE-1-100419	Magnesium	mg/kg	2050	1
REF012-SE-1-100419	Manganese	mg/kg	83.1	1
REF012-SE-1-100419	Mercury	mg/kg	0.002	0
REF012-SE-1-100419	Nickel	mg/kg	6.18	1
REF012-SE-1-100419	Potassium	mg/kg	641	1
REF012-SE-1-100419	Selenium	mg/kg	0.2	1
REF012-SE-1-100419	Silver	mg/kg	0.029	1
REF012-SE-1-100419	Sodium	mg/kg	66	1
REF012-SE-1-100419	Thallium	mg/kg	0.055	1
REF012-SE-1-100419	Vanadium	mg/kg	13.7	1
REF012-SE-1-100419	Zinc	mg/kg	44.7	1
REF013-SE-1-092419	Aluminum	mg/kg	3510	1
REF013-SE-1-092419	Antimony	mg/kg	0.054	1
REF013-SE-1-092419	Arsenic	mg/kg	0.89	1
REF013-SE-1-092419	Barium	mg/kg	41	1
REF013-SE-1-092419	Beryllium	mg/kg	0.146	1
REF013-SE-1-092419	Cadmium	mg/kg	0.133	1
REF013-SE-1-092419	Calcium	mg/kg	2060	1
REF013-SE-1-092419	Chromium	mg/kg	11.6	1
REF013-SE-1-092419	Cobalt	mg/kg	2.85	1
REF013-SE-1-092419	Copper	mg/kg	3.89	1
REF013-SE-1-092419	Iron	mg/kg	6530	1
REF013-SE-1-092419	Lead	mg/kg	8.4	1
REF013-SE-1-092419	Magnesium	mg/kg	2230	1
REF013-SE-1-092419	Manganese	mg/kg	74.6	1
REF013-SE-1-092419	Mercury	mg/kg	0.002	0
REF013-SE-1-092419	Nickel	mg/kg	11.7	1
REF013-SE-1-092419	Potassium	mg/kg	719	1
REF013-SE-1-092419	Selenium	mg/kg	0.09	1
REF013-SE-1-092419	Silver	mg/kg	0.019	1
REF013-SE-1-092419	Sodium	mg/kg	103	1
REF013-SE-1-092419	Thallium	mg/kg	0.064	1
REF013-SE-1-092419	Vanadium	mg/kg	11.8	1
REF013-SE-1-092419	Zinc	mg/kg	28.6	1
REF014-SE-1-092619	Aluminum	mg/kg	5330	1
REF014-SE-1-092619	Antimony	mg/kg	0.136	1
REF014-SE-1-092619	Arsenic	mg/kg	1.23	1
REF014-SE-1-092619	Barium	mg/kg	54.5	1
REF014-SE-1-092619	Beryllium	mg/kg	0.202	1

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Sample ID	Analyte	Unit	Value	Detect
REF014-SE-1-092619	Cadmium	mg/kg	0.238	1
REF014-SE-1-092619	Calcium	mg/kg	2370	1
REF014-SE-1-092619	Chromium	mg/kg	14.3	1
REF014-SE-1-092619	Cobalt	mg/kg	3.45	1
REF014-SE-1-092619	Copper	mg/kg	6.17	1
REF014-SE-1-092619	Iron	mg/kg	8500	1
REF014-SE-1-092619	Lead	mg/kg	12.5	1
REF014-SE-1-092619	Magnesium	mg/kg	2580	1
REF014-SE-1-092619	Manganese	mg/kg	103	1
REF014-SE-1-092619	Mercury	mg/kg	0.009	0
REF014-SE-1-092619	Nickel	mg/kg	13.4	1
REF014-SE-1-092619	Potassium	mg/kg	954	1
REF014-SE-1-092619	Selenium	mg/kg	0.2	0
REF014-SE-1-092619	Silver	mg/kg	0.0345	1
REF014-SE-1-092619	Sodium	mg/kg	104	1
REF014-SE-1-092619	Thallium	mg/kg	0.084	1
REF014-SE-1-092619	Vanadium	mg/kg	13.5	1
REF014-SE-1-092619	Zinc	mg/kg	37	1
REF016-SE-1-092519	Aluminum	mg/kg	9100	1
REF016-SE-1-092519	Antimony	mg/kg	0.04	0
REF016-SE-1-092519	Arsenic	mg/kg	9.5	1
REF016-SE-1-092519	Barium	mg/kg	98.6	1
REF016-SE-1-092519	Beryllium	mg/kg	0.525	1
REF016-SE-1-092519	Cadmium	mg/kg	0.229	1
REF016-SE-1-092519	Calcium	mg/kg	4480	1
REF016-SE-1-092519	Chromium	mg/kg	20.4	1
REF016-SE-1-092519	Cobalt	mg/kg	13.1	1
REF016-SE-1-092519	Copper	mg/kg	16.3	1
REF016-SE-1-092519	Iron	mg/kg	20200	1
REF016-SE-1-092519	Lead	mg/kg	10	1
REF016-SE-1-092519	Magnesium	mg/kg	4300	1
REF016-SE-1-092519	Manganese	mg/kg	226	1
REF016-SE-1-092519	Mercury	mg/kg	0.013	1
REF016-SE-1-092519	Nickel	mg/kg	24.5	1
REF016-SE-1-092519	Potassium	mg/kg	1830	1
REF016-SE-1-092519	Selenium	mg/kg	0.4	1
REF016-SE-1-092519	Silver	mg/kg	0.066	1
REF016-SE-1-092519	Sodium	mg/kg	215	1
REF016-SE-1-092519	Thallium	mg/kg	0.183	1
REF016-SE-1-092519	Vanadium	mg/kg	30.6	1
REF016-SE-1-092519	Zinc	mg/kg	47.2	1
REF017-SE-1-092519	Aluminum	mg/kg	9310	1
REF017-SE-1-092519	Antimony	mg/kg	0.05	1
REF017-SE-1-092519	Arsenic	mg/kg	4.6	1
REF017-SE-1-092519	Barium	mg/kg	110	1
REF017-SE-1-092519	Beryllium	mg/kg	0.487	1
REF017-SE-1-092519	Cadmium	mg/kg	0.219	1
REF017-SE-1-092519	Calcium	mg/kg	4440	1
REF017-SE-1-092519	Chromium	mg/kg	19.4	1

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Sample ID	Analyte	Unit	Value	Detect
REF017-SE-1-092519	Cobalt	mg/kg	10	1
REF017-SE-1-092519	Copper	mg/kg	19.2	1
REF017-SE-1-092519	Iron	mg/kg	18500	1
REF017-SE-1-092519	Lead	mg/kg	11.6	1
REF017-SE-1-092519	Magnesium	mg/kg	4830	1
REF017-SE-1-092519	Manganese	mg/kg	205	1
REF017-SE-1-092519	Mercury	mg/kg	0.014	1
REF017-SE-1-092519	Nickel	mg/kg	20.3	1
REF017-SE-1-092519	Potassium	mg/kg	2080	1
REF017-SE-1-092519	Selenium	mg/kg	0.4	1
REF017-SE-1-092519	Silver	mg/kg	0.081	1
REF017-SE-1-092519	Sodium	mg/kg	312	1
REF017-SE-1-092519	Thallium	mg/kg	0.16	1
REF017-SE-1-092519	Vanadium	mg/kg	28.1	1
REF017-SE-1-092519	Zinc	mg/kg	47	1
REF018-SE-1-092519	Aluminum	mg/kg	9360	1
REF018-SE-1-092519	Antimony	mg/kg	0.28	1
REF018-SE-1-092519	Arsenic	mg/kg	3.2	1
REF018-SE-1-092519	Barium	mg/kg	109	1
REF018-SE-1-092519	Beryllium	mg/kg	0.678	1
REF018-SE-1-092519	Cadmium	mg/kg	0.631	1
REF018-SE-1-092519	Calcium	mg/kg	6650	1
REF018-SE-1-092519	Chromium	mg/kg	19.2	1
REF018-SE-1-092519	Cobalt	mg/kg	7.76	1
REF018-SE-1-092519	Copper	mg/kg	19.9	1
REF018-SE-1-092519	Iron	mg/kg	18600	1
REF018-SE-1-092519	Lead	mg/kg	26.7	1
REF018-SE-1-092519	Magnesium	mg/kg	5100	1
REF018-SE-1-092519	Manganese	mg/kg	216	1
REF018-SE-1-092519	Mercury	mg/kg	0.03	1
REF018-SE-1-092519	Nickel	mg/kg	20	1
REF018-SE-1-092519	Potassium	mg/kg	1880	1
REF018-SE-1-092519	Selenium	mg/kg	0.5	1
REF018-SE-1-092519	Silver	mg/kg	0.1	1
REF018-SE-1-092519	Sodium	mg/kg	249	1
REF018-SE-1-092519	Thallium	mg/kg	0.197	1
REF018-SE-1-092519	Vanadium	mg/kg	28.4	1
REF018-SE-1-092519	Zinc	mg/kg	58.8	1
SD-AAA	Aluminum	mg/kg	6380	1
SD-AAA	Antimony	mg/kg	0.072	0
SD-AAA	Arsenic	mg/kg	2.36	1
SD-AAA	Barium	mg/kg	61.2	1
SD-AAA	Beryllium	mg/kg	0.22	1
SD-AAA	Cadmium	mg/kg	0.222	1
SD-AAA	Calcium	mg/kg	3720	1
SD-AAA	Chromium	mg/kg	12.3	1
SD-AAA	Cobalt	mg/kg	4.45	1
SD-AAA	Copper	mg/kg	12	1
SD-AAA	Iron	mg/kg	12900	1

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Sample ID	Analyte	Unit	Value	Detect
SD-AAA	Lead	mg/kg	7.6	1
SD-AAA	Magnesium	mg/kg	4130	1
SD-AAA	Manganese	mg/kg	229	1
SD-AAA	Mercury	mg/kg	0.01	1
SD-AAA	Nickel	mg/kg	11.4	1
SD-AAA	Potassium	mg/kg	1000	1
SD-AAA	Selenium	mg/kg	0.2	1
SD-AAA	Silver	mg/kg	0.073	1
SD-AAA	Sodium	mg/kg	118	1
SD-AAA	Thallium	mg/kg	0.146	1
SD-AAA	Vanadium	mg/kg	19.3	1
SD-AAA	Zinc	mg/kg	44.9	1
SD-AAB	Aluminum	mg/kg	6030	1
SD-AAB	Antimony	mg/kg	0.083	0
SD-AAB	Arsenic	mg/kg	2.02	1
SD-AAB	Barium	mg/kg	59.4	1
SD-AAB	Beryllium	mg/kg	0.17	1
SD-AAB	Cadmium	mg/kg	0.199	1
SD-AAB	Calcium	mg/kg	3330	1
SD-AAB	Chromium	mg/kg	9.7	1
SD-AAB	Cobalt	mg/kg	4.3	1
SD-AAB	Copper	mg/kg	12	1
SD-AAB	Iron	mg/kg	13300	1
SD-AAB	Lead	mg/kg	7.17	1
SD-AAB	Magnesium	mg/kg	3920	1
SD-AAB	Manganese	mg/kg	220	1
SD-AAB	Mercury	mg/kg	0.008	1
SD-AAB	Nickel	mg/kg	12	1
SD-AAB	Potassium	mg/kg	863	1
SD-AAB	Selenium	mg/kg	0.2	0
SD-AAB	Silver	mg/kg	0.073	1
SD-AAB	Sodium	mg/kg	113	1
SD-AAB	Thallium	mg/kg	0.097	1
SD-AAB	Vanadium	mg/kg	15.8	1
SD-AAB	Zinc	mg/kg	45.8	1
SD-AAC	Aluminum	mg/kg	6320	1
SD-AAC	Antimony	mg/kg	0.069	0
SD-AAC	Arsenic	mg/kg	1.8	1
SD-AAC	Barium	mg/kg	64.7	1
SD-AAC	Beryllium	mg/kg	0.22	1
SD-AAC	Cadmium	mg/kg	0.204	1
SD-AAC	Calcium	mg/kg	3110	1
SD-AAC	Chromium	mg/kg	11	1
SD-AAC	Cobalt	mg/kg	4.44	1
SD-AAC	Copper	mg/kg	11.2	1
SD-AAC	Iron	mg/kg	13700	1
SD-AAC	Lead	mg/kg	7.88	1
SD-AAC	Magnesium	mg/kg	3890	1
SD-AAC	Manganese	mg/kg	242	1

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Sample ID	Analyte	Unit	Value	Detect
SD-AAC	Mercury	mg/kg	0.011	1
SD-AAC	Nickel	mg/kg	11.4	1
SD-AAC	Potassium	mg/kg	969	1
SD-AAC	Selenium	mg/kg	0.2	0
SD-AAC	Silver	mg/kg	0.068	1
SD-AAC	Sodium	mg/kg	104	1
SD-AAC	Thallium	mg/kg	0.126	1
SD-AAC	Vanadium	mg/kg	16.7	1
SD-AAC	Zinc	mg/kg	50.6	1
SD-AAD-1	Aluminum	mg/kg	6435	1
SD-AAD-1	Antimony	mg/kg	0.142	1
SD-AAD-1	Arsenic	mg/kg	1.965	1
SD-AAD-1	Barium	mg/kg	59.05	1
SD-AAD-1	Beryllium	mg/kg	0.205	1
SD-AAD-1	Cadmium	mg/kg	0.239	1
SD-AAD-1	Calcium	mg/kg	3195	1
SD-AAD-1	Chromium	mg/kg	11	1
SD-AAD-1	Cobalt	mg/kg	4.17	1
SD-AAD-1	Copper	mg/kg	11.7	1
SD-AAD-1	Iron	mg/kg	13250	1
SD-AAD-1	Lead	mg/kg	8.395	1
SD-AAD-1	Magnesium	mg/kg	3755	1
SD-AAD-1	Manganese	mg/kg	210.5	1
SD-AAD-1	Mercury	mg/kg	0.013	1
SD-AAD-1	Nickel	mg/kg	11.3	1
SD-AAD-1	Potassium	mg/kg	922.5	1
SD-AAD-1	Selenium	mg/kg	0.2	0
SD-AAD-1	Silver	mg/kg	0.0735	1
SD-AAD-1	Sodium	mg/kg	118.5	1
SD-AAD-1	Thallium	mg/kg	0.1295	1
SD-AAD-1	Vanadium	mg/kg	18	1
SD-AAD-1	Zinc	mg/kg	49.3	1
SD-AAE	Aluminum	mg/kg	5600	1
SD-AAE	Antimony	mg/kg	0.085	0
SD-AAE	Arsenic	mg/kg	2.03	1
SD-AAE	Barium	mg/kg	66.2	1
SD-AAE	Beryllium	mg/kg	0.18	1
SD-AAE	Cadmium	mg/kg	0.198	1
SD-AAE	Calcium	mg/kg	3090	1
SD-AAE	Chromium	mg/kg	10.9	1
SD-AAE	Cobalt	mg/kg	4.32	1
SD-AAE	Copper	mg/kg	10.3	1
SD-AAE	Iron	mg/kg	14400	1
SD-AAE	Lead	mg/kg	6.74	1
SD-AAE	Magnesium	mg/kg	3650	1
SD-AAE	Manganese	mg/kg	215	1
SD-AAE	Mercury	mg/kg	0.008	1
SD-AAE	Nickel	mg/kg	11.4	1
SD-AAE	Potassium	mg/kg	861	1

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Sample ID	Analyte	Unit	Value	Detect
SD-AAE	Selenium	mg/kg	0.2	0
SD-AAE	Silver	mg/kg	0.063	1
SD-AAE	Sodium	mg/kg	99	1
SD-AAE	Thallium	mg/kg	0.112	1
SD-AAE	Vanadium	mg/kg	17.6	1
SD-AAE	Zinc	mg/kg	42.8	1
SD-CRA	Aluminum	mg/kg	7810	1
SD-CRA	Antimony	mg/kg	0.15	1
SD-CRA	Arsenic	mg/kg	1.84	1
SD-CRA	Barium	mg/kg	83.1	1
SD-CRA	Beryllium	mg/kg	0.23	1
SD-CRA	Cadmium	mg/kg	0.235	1
SD-CRA	Calcium	mg/kg	3200	1
SD-CRA	Chromium	mg/kg	11.7	1
SD-CRA	Cobalt	mg/kg	5.44	1
SD-CRA	Copper	mg/kg	14.5	1
SD-CRA	Iron	mg/kg	15300	1
SD-CRA	Lead	mg/kg	9.78	1
SD-CRA	Magnesium	mg/kg	4120	1
SD-CRA	Manganese	mg/kg	241	1
SD-CRA	Mercury	mg/kg	0.019	1
SD-CRA	Nickel	mg/kg	13.3	1
SD-CRA	Potassium	mg/kg	1130	1
SD-CRA	Selenium	mg/kg	0.2	0
SD-CRA	Silver	mg/kg	0.094	1
SD-CRA	Sodium	mg/kg	119	1
SD-CRA	Thallium	mg/kg	0.129	1
SD-CRA	Vanadium	mg/kg	18.1	1
SD-CRA	Zinc	mg/kg	60.3	1
SD-CRB-1	Aluminum	mg/kg	8490	1
SD-CRB-1	Antimony	mg/kg	0.102	0
SD-CRB-1	Arsenic	mg/kg	1.84	1
SD-CRB-1	Barium	mg/kg	81.95	1
SD-CRB-1	Beryllium	mg/kg	0.23	1
SD-CRB-1	Cadmium	mg/kg	0.348	1
SD-CRB-1	Calcium	mg/kg	3500	1
SD-CRB-1	Chromium	mg/kg	12.7	1
SD-CRB-1	Cobalt	mg/kg	5.3	1
SD-CRB-1	Copper	mg/kg	12.15	1
SD-CRB-1	Iron	mg/kg	15800	1
SD-CRB-1	Lead	mg/kg	12.3	1
SD-CRB-1	Magnesium	mg/kg	4120	1
SD-CRB-1	Manganese	mg/kg	228	1
SD-CRB-1	Mercury	mg/kg	0.0105	1
SD-CRB-1	Nickel	mg/kg	12.95	1
SD-CRB-1	Potassium	mg/kg	1105	1
SD-CRB-1	Selenium	mg/kg	0.2	0
SD-CRB-1	Silver	mg/kg	0.054	1
SD-CRB-1	Sodium	mg/kg	129.5	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-CRB-1	Thallium	mg/kg	0.1445	1
SD-CRB-1	Vanadium	mg/kg	19.6	1
SD-CRB-1	Zinc	mg/kg	66.65	1
SD-CRC	Aluminum	mg/kg	6590	1
SD-CRC	Antimony	mg/kg	0.115	0
SD-CRC	Arsenic	mg/kg	1.87	1
SD-CRC	Barium	mg/kg	65	1
SD-CRC	Beryllium	mg/kg	0.21	1
SD-CRC	Cadmium	mg/kg	0.192	1
SD-CRC	Calcium	mg/kg	4430	1
SD-CRC	Chromium	mg/kg	11.6	1
SD-CRC	Cobalt	mg/kg	4.65	1
SD-CRC	Copper	mg/kg	11.2	1
SD-CRC	Iron	mg/kg	14400	1
SD-CRC	Lead	mg/kg	7.18	1
SD-CRC	Magnesium	mg/kg	3690	1
SD-CRC	Manganese	mg/kg	170	1
SD-CRC	Mercury	mg/kg	0.009	1
SD-CRC	Nickel	mg/kg	11	1
SD-CRC	Potassium	mg/kg	993	1
SD-CRC	Selenium	mg/kg	0.2	0
SD-CRC	Silver	mg/kg	0.059	1
SD-CRC	Sodium	mg/kg	118	1
SD-CRC	Thallium	mg/kg	0.114	1
SD-CRC	Vanadium	mg/kg	18.4	1
SD-CRC	Zinc	mg/kg	48.3	1
SD-CRD	Aluminum	mg/kg	7470	1
SD-CRD	Antimony	mg/kg	0.184	1
SD-CRD	Arsenic	mg/kg	1.81	1
SD-CRD	Barium	mg/kg	72.2	1
SD-CRD	Beryllium	mg/kg	0.18	1
SD-CRD	Cadmium	mg/kg	0.225	1
SD-CRD	Calcium	mg/kg	3670	1
SD-CRD	Chromium	mg/kg	11.6	1
SD-CRD	Cobalt	mg/kg	4.36	1
SD-CRD	Copper	mg/kg	11.1	1
SD-CRD	Iron	mg/kg	14500	1
SD-CRD	Lead	mg/kg	8.01	1
SD-CRD	Magnesium	mg/kg	3600	1
SD-CRD	Manganese	mg/kg	181	1
SD-CRD	Mercury	mg/kg	0.012	1
SD-CRD	Nickel	mg/kg	10.2	1
SD-CRD	Potassium	mg/kg	965	1
SD-CRD	Selenium	mg/kg	0.2	0
SD-CRD	Silver	mg/kg	0.063	1
SD-CRD	Sodium	mg/kg	141	1
SD-CRD	Thallium	mg/kg	0.107	1
SD-CRD	Vanadium	mg/kg	18.1	1
SD-CRD	Zinc	mg/kg	49.3	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Sample ID	Analyte	Unit	Value	Detect
SD-CRE	Aluminum	mg/kg	7540	1
SD-CRE	Antimony	mg/kg	0.121	1
SD-CRE	Arsenic	mg/kg	2.11	1
SD-CRE	Barium	mg/kg	70.9	1
SD-CRE	Beryllium	mg/kg	0.2	1
SD-CRE	Cadmium	mg/kg	0.409	1
SD-CRE	Calcium	mg/kg	3590	1
SD-CRE	Chromium	mg/kg	11.6	1
SD-CRE	Cobalt	mg/kg	5.08	1
SD-CRE	Copper	mg/kg	11.6	1
SD-CRE	Iron	mg/kg	14900	1
SD-CRE	Lead	mg/kg	12.7	1
SD-CRE	Magnesium	mg/kg	4200	1
SD-CRE	Manganese	mg/kg	195	1
SD-CRE	Mercury	mg/kg	0.009	1
SD-CRE	Nickel	mg/kg	12.8	1
SD-CRE	Potassium	mg/kg	1010	1
SD-CRE	Selenium	mg/kg	0.2	0
SD-CRE	Silver	mg/kg	0.059	1
SD-CRE	Sodium	mg/kg	107	1
SD-CRE	Thallium	mg/kg	0.16	1
SD-CRE	Vanadium	mg/kg	18.1	1
SD-CRE	Zinc	mg/kg	71.9	1
SD-CSA	Aluminum	mg/kg	5060	1
SD-CSA	Antimony	mg/kg	0.09	0
SD-CSA	Arsenic	mg/kg	1.92	1
SD-CSA	Barium	mg/kg	65	1
SD-CSA	Beryllium	mg/kg	0.26	1
SD-CSA	Cadmium	mg/kg	0.054	0
SD-CSA	Calcium	mg/kg	6680	1
SD-CSA	Chromium	mg/kg	4.08	1
SD-CSA	Cobalt	mg/kg	5.7	1
SD-CSA	Copper	mg/kg	10.6	1
SD-CSA	Iron	mg/kg	18400	1
SD-CSA	Lead	mg/kg	3.24	1
SD-CSA	Magnesium	mg/kg	3790	1
SD-CSA	Manganese	mg/kg	275	1
SD-CSA	Mercury	mg/kg	0.003	1
SD-CSA	Nickel	mg/kg	5.58	1
SD-CSA	Potassium	mg/kg	787	1
SD-CSA	Selenium	mg/kg	0.2	0
SD-CSA	Silver	mg/kg	0.026	1
SD-CSA	Sodium	mg/kg	307	1
SD-CSA	Thallium	mg/kg	0.066	0
SD-CSA	Vanadium	mg/kg	25.7	1
SD-CSA	Zinc	mg/kg	34.1	1
SD-CSB	Aluminum	mg/kg	5380	1
SD-CSB	Antimony	mg/kg	0.066	0
SD-CSB	Arsenic	mg/kg	2.11	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Appendix C, Attachment C2

Sample ID	Analyte	Unit	Value	Detect
SD-CSB	Barium	mg/kg	73	1
SD-CSB	Beryllium	mg/kg	0.23	1
SD-CSB	Cadmium	mg/kg	0.075	1
SD-CSB	Calcium	mg/kg	7400	1
SD-CSB	Chromium	mg/kg	4.17	1
SD-CSB	Cobalt	mg/kg	5.91	1
SD-CSB	Copper	mg/kg	9.9	1
SD-CSB	Iron	mg/kg	18200	1
SD-CSB	Lead	mg/kg	3.83	1
SD-CSB	Magnesium	mg/kg	4010	1
SD-CSB	Manganese	mg/kg	285	1
SD-CSB	Mercury	mg/kg	0.003	1
SD-CSB	Nickel	mg/kg	5.65	1
SD-CSB	Potassium	mg/kg	908	1
SD-CSB	Selenium	mg/kg	0.2	0
SD-CSB	Silver	mg/kg	0.029	1
SD-CSB	Sodium	mg/kg	310	1
SD-CSB	Thallium	mg/kg	0.079	1
SD-CSB	Vanadium	mg/kg	26.2	1
SD-CSB	Zinc	mg/kg	35.5	1
SD-CSC	Aluminum	mg/kg	5310	1
SD-CSC	Antimony	mg/kg	0.072	0
SD-CSC	Arsenic	mg/kg	1.92	1
SD-CSC	Barium	mg/kg	68.1	1
SD-CSC	Beryllium	mg/kg	0.25	1
SD-CSC	Cadmium	mg/kg	0.068	0
SD-CSC	Calcium	mg/kg	6130	1
SD-CSC	Chromium	mg/kg	3.9	1
SD-CSC	Cobalt	mg/kg	6.12	1
SD-CSC	Copper	mg/kg	11.1	1
SD-CSC	Iron	mg/kg	18500	1
SD-CSC	Lead	mg/kg	3.53	1
SD-CSC	Magnesium	mg/kg	4050	1
SD-CSC	Manganese	mg/kg	273	1
SD-CSC	Mercury	mg/kg	0.002	1
SD-CSC	Nickel	mg/kg	5.79	1
SD-CSC	Potassium	mg/kg	843	1
SD-CSC	Selenium	mg/kg	0.2	0
SD-CSC	Silver	mg/kg	0.029	1
SD-CSC	Sodium	mg/kg	313	1
SD-CSC	Thallium	mg/kg	0.071	0
SD-CSC	Vanadium	mg/kg	24.9	1
SD-CSC	Zinc	mg/kg	36.5	1
SD-CSD	Aluminum	mg/kg	5190	1
SD-CSD	Antimony	mg/kg	0.071	0
SD-CSD	Arsenic	mg/kg	1.97	1
SD-CSD	Barium	mg/kg	65.7	1
SD-CSD	Beryllium	mg/kg	0.23	1
SD-CSD	Cadmium	mg/kg	0.067	0

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-CSD	Calcium	mg/kg	6420	1
SD-CSD	Chromium	mg/kg	3.91	1
SD-CSD	Cobalt	mg/kg	5.8	1
SD-CSD	Copper	mg/kg	11.7	1
SD-CSD	Iron	mg/kg	18000	1
SD-CSD	Lead	mg/kg	3.29	1
SD-CSD	Magnesium	mg/kg	3850	1
SD-CSD	Manganese	mg/kg	279	1
SD-CSD	Mercury	mg/kg	0.003	1
SD-CSD	Nickel	mg/kg	5.61	1
SD-CSD	Potassium	mg/kg	799	1
SD-CSD	Selenium	mg/kg	0.2	0
SD-CSD	Silver	mg/kg	0.029	1
SD-CSD	Sodium	mg/kg	324	1
SD-CSD	Thallium	mg/kg	0.064	0
SD-CSD	Vanadium	mg/kg	25.1	1
SD-CSD	Zinc	mg/kg	34.3	1
SD-CSE	Aluminum	mg/kg	5530	1
SD-CSE	Antimony	mg/kg	0.075	0
SD-CSE	Arsenic	mg/kg	2.14	1
SD-CSE	Barium	mg/kg	72.8	1
SD-CSE	Beryllium	mg/kg	0.27	1
SD-CSE	Cadmium	mg/kg	0.066	0
SD-CSE	Calcium	mg/kg	6510	1
SD-CSE	Chromium	mg/kg	4.07	1
SD-CSE	Cobalt	mg/kg	5.85	1
SD-CSE	Copper	mg/kg	11.3	1
SD-CSE	Iron	mg/kg	17600	1
SD-CSE	Lead	mg/kg	3.59	1
SD-CSE	Magnesium	mg/kg	4130	1
SD-CSE	Manganese	mg/kg	293	1
SD-CSE	Mercury	mg/kg	0.003	1
SD-CSE	Nickel	mg/kg	5.66	1
SD-CSE	Potassium	mg/kg	920	1
SD-CSE	Selenium	mg/kg	0.2	0
SD-CSE	Silver	mg/kg	0.029	1
SD-CSE	Sodium	mg/kg	309	1
SD-CSE	Thallium	mg/kg	0.067	0
SD-CSE	Vanadium	mg/kg	25.1	1
SD-CSE	Zinc	mg/kg	34.8	1
SD-ENA	Aluminum	mg/kg	5470	1
SD-ENA	Antimony	mg/kg	0.115	0
SD-ENA	Arsenic	mg/kg	2.72	1
SD-ENA	Barium	mg/kg	54.8	1
SD-ENA	Beryllium	mg/kg	0.2	1
SD-ENA	Cadmium	mg/kg	0.169	1
SD-ENA	Calcium	mg/kg	5050	1
SD-ENA	Chromium	mg/kg	9.58	1
SD-ENA	Cobalt	mg/kg	4.05	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-ENA	Copper	mg/kg	8.5	1
SD-ENA	Iron	mg/kg	11300	1
SD-ENA	Lead	mg/kg	6.03	1
SD-ENA	Magnesium	mg/kg	3680	1
SD-ENA	Manganese	mg/kg	204	1
SD-ENA	Mercury	mg/kg	0.005	1
SD-ENA	Nickel	mg/kg	9.77	1
SD-ENA	Potassium	mg/kg	913	1
SD-ENA	Selenium	mg/kg	0.2	0
SD-ENA	Silver	mg/kg	0.04	1
SD-ENA	Sodium	mg/kg	59	1
SD-ENA	Thallium	mg/kg	0.094	1
SD-ENA	Vanadium	mg/kg	13.6	1
SD-ENA	Zinc	mg/kg	38.5	1
SD-ENB	Aluminum	mg/kg	5130	1
SD-ENB	Antimony	mg/kg	0.101	0
SD-ENB	Arsenic	mg/kg	2.02	1
SD-ENB	Barium	mg/kg	53.2	1
SD-ENB	Beryllium	mg/kg	0.18	1
SD-ENB	Cadmium	mg/kg	0.133	1
SD-ENB	Calcium	mg/kg	3960	1
SD-ENB	Chromium	mg/kg	10.3	1
SD-ENB	Cobalt	mg/kg	4.2	1
SD-ENB	Copper	mg/kg	8.9	1
SD-ENB	Iron	mg/kg	11300	1
SD-ENB	Lead	mg/kg	4.7	1
SD-ENB	Magnesium	mg/kg	3260	1
SD-ENB	Manganese	mg/kg	191	1
SD-ENB	Mercury	mg/kg	0.004	1
SD-ENB	Nickel	mg/kg	10.5	1
SD-ENB	Potassium	mg/kg	868	1
SD-ENB	Selenium	mg/kg	0.2	0
SD-ENB	Silver	mg/kg	0.053	1
SD-ENB	Sodium	mg/kg	60	1
SD-ENB	Thallium	mg/kg	0.092	1
SD-ENB	Vanadium	mg/kg	13.3	1
SD-ENB	Zinc	mg/kg	36.9	1
SD-ENC	Aluminum	mg/kg	5640	1
SD-ENC	Antimony	mg/kg	0.119	1
SD-ENC	Arsenic	mg/kg	3.18	1
SD-ENC	Barium	mg/kg	61	1
SD-ENC	Beryllium	mg/kg	0.21	1
SD-ENC	Cadmium	mg/kg	0.181	1
SD-ENC	Calcium	mg/kg	4860	1
SD-ENC	Chromium	mg/kg	9.6	1
SD-ENC	Cobalt	mg/kg	4.45	1
SD-ENC	Copper	mg/kg	8.9	1
SD-ENC	Iron	mg/kg	12400	1
SD-ENC	Lead	mg/kg	6.13	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-ENC	Magnesium	mg/kg	3920	1
SD-ENC	Manganese	mg/kg	211	1
SD-ENC	Mercury	mg/kg	0.005	1
SD-ENC	Nickel	mg/kg	10.3	1
SD-ENC	Potassium	mg/kg	1000	1
SD-ENC	Selenium	mg/kg	0.2	0
SD-ENC	Silver	mg/kg	0.044	1
SD-ENC	Sodium	mg/kg	55	1
SD-ENC	Thallium	mg/kg	0.095	1
SD-ENC	Vanadium	mg/kg	12.9	1
SD-ENC	Zinc	mg/kg	38.9	1
SD-END	Aluminum	mg/kg	5760	1
SD-END	Antimony	mg/kg	0.133	1
SD-END	Arsenic	mg/kg	3.1	1
SD-END	Barium	mg/kg	58.3	1
SD-END	Beryllium	mg/kg	0.23	1
SD-END	Cadmium	mg/kg	0.166	1
SD-END	Calcium	mg/kg	5070	1
SD-END	Chromium	mg/kg	11.7	1
SD-END	Cobalt	mg/kg	4.63	1
SD-END	Copper	mg/kg	9.7	1
SD-END	Iron	mg/kg	12400	1
SD-END	Lead	mg/kg	5.59	1
SD-END	Magnesium	mg/kg	4000	1
SD-END	Manganese	mg/kg	216	1
SD-END	Mercury	mg/kg	0.004	1
SD-END	Nickel	mg/kg	10.7	1
SD-END	Potassium	mg/kg	1070	1
SD-END	Selenium	mg/kg	0.2	0
SD-END	Silver	mg/kg	0.057	1
SD-END	Sodium	mg/kg	65	1
SD-END	Thallium	mg/kg	0.096	1
SD-END	Vanadium	mg/kg	15.5	1
SD-END	Zinc	mg/kg	37.4	1
SD-ENE	Aluminum	mg/kg	5930	1
SD-ENE	Antimony	mg/kg	0.129	1
SD-ENE	Arsenic	mg/kg	3.23	1
SD-ENE	Barium	mg/kg	61.4	1
SD-ENE	Beryllium	mg/kg	0.22	1
SD-ENE	Cadmium	mg/kg	0.14	1
SD-ENE	Calcium	mg/kg	6370	1
SD-ENE	Chromium	mg/kg	10.8	1
SD-ENE	Cobalt	mg/kg	5.41	1
SD-ENE	Copper	mg/kg	10.4	1
SD-ENE	Iron	mg/kg	13000	1
SD-ENE	Lead	mg/kg	5.84	1
SD-ENE	Magnesium	mg/kg	4050	1
SD-ENE	Manganese	mg/kg	282	1
SD-ENE	Mercury	mg/kg	0.004	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-ENE	Nickel	mg/kg	12.2	1
SD-ENE	Potassium	mg/kg	1010	1
SD-ENE	Selenium	mg/kg	0.2	0
SD-ENE	Silver	mg/kg	0.048	1
SD-ENE	Sodium	mg/kg	63	1
SD-ENE	Thallium	mg/kg	0.093	1
SD-ENE	Vanadium	mg/kg	15.4	1
SD-ENE	Zinc	mg/kg	36.7	1
SD-HCA	Aluminum	mg/kg	8870	1
SD-HCA	Antimony	mg/kg	0.312	1
SD-HCA	Arsenic	mg/kg	8.11	1
SD-HCA	Barium	mg/kg	99.6	1
SD-HCA	Beryllium	mg/kg	0.41	1
SD-HCA	Cadmium	mg/kg	0.144	1
SD-HCA	Calcium	mg/kg	14800	1
SD-HCA	Chromium	mg/kg	10.5	1
SD-HCA	Cobalt	mg/kg	6.42	1
SD-HCA	Copper	mg/kg	14.2	1
SD-HCA	Iron	mg/kg	19900	1
SD-HCA	Lead	mg/kg	8.82	1
SD-HCA	Magnesium	mg/kg	7040	1
SD-HCA	Manganese	mg/kg	356	1
SD-HCA	Mercury	mg/kg	0.003	1
SD-HCA	Nickel	mg/kg	8.62	1
SD-HCA	Potassium	mg/kg	1960	1
SD-HCA	Selenium	mg/kg	0.2	0
SD-HCA	Silver	mg/kg	0.072	1
SD-HCA	Sodium	mg/kg	115	1
SD-HCA	Thallium	mg/kg	0.144	1
SD-HCA	Vanadium	mg/kg	15.9	1
SD-HCA	Zinc	mg/kg	46.1	1
SD-HCB-1	Aluminum	mg/kg	9565	1
SD-HCB-1	Antimony	mg/kg	0.278	1
SD-HCB-1	Arsenic	mg/kg	7.64	1
SD-HCB-1	Barium	mg/kg	108.65	1
SD-HCB-1	Beryllium	mg/kg	0.405	1
SD-HCB-1	Cadmium	mg/kg	0.1155	1
SD-HCB-1	Calcium	mg/kg	16250	1
SD-HCB-1	Chromium	mg/kg	9.53	1
SD-HCB-1	Cobalt	mg/kg	7.47	1
SD-HCB-1	Copper	mg/kg	15.95	1
SD-HCB-1	Iron	mg/kg	21000	1
SD-HCB-1	Lead	mg/kg	8.92	1
SD-HCB-1	Magnesium	mg/kg	7705	1
SD-HCB-1	Manganese	mg/kg	421	1
SD-HCB-1	Mercury	mg/kg	0.0045	1
SD-HCB-1	Nickel	mg/kg	12.3	1
SD-HCB-1	Potassium	mg/kg	2010	1
SD-HCB-1	Selenium	mg/kg	0.2	0

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-HCB-1	Silver	mg/kg	0.067	1
SD-HCB-1	Sodium	mg/kg	113.5	1
SD-HCB-1	Thallium	mg/kg	0.1285	1
SD-HCB-1	Vanadium	mg/kg	15	1
SD-HCB-1	Zinc	mg/kg	48.65	1
SD-HCC	Aluminum	mg/kg	9090	1
SD-HCC	Antimony	mg/kg	0.347	1
SD-HCC	Arsenic	mg/kg	7.54	1
SD-HCC	Barium	mg/kg	87.6	1
SD-HCC	Beryllium	mg/kg	0.38	1
SD-HCC	Cadmium	mg/kg	0.128	1
SD-HCC	Calcium	mg/kg	16500	1
SD-HCC	Chromium	mg/kg	9.03	1
SD-HCC	Cobalt	mg/kg	6.46	1
SD-HCC	Copper	mg/kg	13.7	1
SD-HCC	Iron	mg/kg	20100	1
SD-HCC	Lead	mg/kg	8.12	1
SD-HCC	Magnesium	mg/kg	7710	1
SD-HCC	Manganese	mg/kg	385	1
SD-HCC	Mercury	mg/kg	0.004	1
SD-HCC	Nickel	mg/kg	11	1
SD-HCC	Potassium	mg/kg	1850	1
SD-HCC	Selenium	mg/kg	0.2	0
SD-HCC	Silver	mg/kg	0.058	0
SD-HCC	Sodium	mg/kg	97	1
SD-HCC	Thallium	mg/kg	0.116	1
SD-HCC	Vanadium	mg/kg	14.8	1
SD-HCC	Zinc	mg/kg	45.7	1
SD-HCD	Aluminum	mg/kg	9040	1
SD-HCD	Antimony	mg/kg	0.293	1
SD-HCD	Arsenic	mg/kg	8.01	1
SD-HCD	Barium	mg/kg	87.6	1
SD-HCD	Beryllium	mg/kg	0.36	1
SD-HCD	Cadmium	mg/kg	0.125	1
SD-HCD	Calcium	mg/kg	17200	1
SD-HCD	Chromium	mg/kg	11.4	1
SD-HCD	Cobalt	mg/kg	6.07	1
SD-HCD	Copper	mg/kg	14.1	1
SD-HCD	Iron	mg/kg	20000	1
SD-HCD	Lead	mg/kg	8.51	1
SD-HCD	Magnesium	mg/kg	7970	1
SD-HCD	Manganese	mg/kg	378	1
SD-HCD	Mercury	mg/kg	0.004	1
SD-HCD	Nickel	mg/kg	9.59	1
SD-HCD	Potassium	mg/kg	2070	1
SD-HCD	Selenium	mg/kg	0.2	0
SD-HCD	Silver	mg/kg	0.062	1
SD-HCD	Sodium	mg/kg	109	1
SD-HCD	Thallium	mg/kg	0.122	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-HCD	Vanadium	mg/kg	15.8	1
SD-HCD	Zinc	mg/kg	47.3	1
SD-HCE	Aluminum	mg/kg	8870	1
SD-HCE	Antimony	mg/kg	0.336	1
SD-HCE	Arsenic	mg/kg	8.27	1
SD-HCE	Barium	mg/kg	94.7	1
SD-HCE	Beryllium	mg/kg	0.35	1
SD-HCE	Cadmium	mg/kg	0.111	1
SD-HCE	Calcium	mg/kg	16000	1
SD-HCE	Chromium	mg/kg	9.44	1
SD-HCE	Cobalt	mg/kg	5.96	1
SD-HCE	Copper	mg/kg	13.6	1
SD-HCE	Iron	mg/kg	18900	1
SD-HCE	Lead	mg/kg	8.3	1
SD-HCE	Magnesium	mg/kg	7350	1
SD-HCE	Manganese	mg/kg	380	1
SD-HCE	Mercury	mg/kg	0.003	1
SD-HCE	Nickel	mg/kg	9.07	1
SD-HCE	Potassium	mg/kg	2150	1
SD-HCE	Selenium	mg/kg	0.2	0
SD-HCE	Silver	mg/kg	0.062	1
SD-HCE	Sodium	mg/kg	94	1
SD-HCE	Thallium	mg/kg	0.122	1
SD-HCE	Vanadium	mg/kg	14.5	1
SD-HCE	Zinc	mg/kg	43.9	1
SD-HTA	Aluminum	mg/kg	16200	1
SD-HTA	Antimony	mg/kg	0.291	1
SD-HTA	Arsenic	mg/kg	4.02	1
SD-HTA	Barium	mg/kg	159	1
SD-HTA	Beryllium	mg/kg	0.62	1
SD-HTA	Cadmium	mg/kg	0.71	1
SD-HTA	Calcium	mg/kg	8760	1
SD-HTA	Chromium	mg/kg	21.8	1
SD-HTA	Cobalt	mg/kg	11.4	1
SD-HTA	Copper	mg/kg	29.2	1
SD-HTA	Iron	mg/kg	25600	1
SD-HTA	Lead	mg/kg	25.5	1
SD-HTA	Magnesium	mg/kg	8070	1
SD-HTA	Manganese	mg/kg	598	1
SD-HTA	Mercury	mg/kg	0.037	1
SD-HTA	Nickel	mg/kg	28.8	1
SD-HTA	Potassium	mg/kg	2940	1
SD-HTA	Selenium	mg/kg	0.2	0
SD-HTA	Silver	mg/kg	0.13	1
SD-HTA	Sodium	mg/kg	242	1
SD-HTA	Thallium	mg/kg	0.312	1
SD-HTA	Vanadium	mg/kg	25.2	1
SD-HTA	Zinc	mg/kg	118	1
SD-HTB	Aluminum	mg/kg	16500	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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Sample ID	Analyte	Unit	Value	Detect
SD-HTB	Antimony	mg/kg	0.276	1
SD-HTB	Arsenic	mg/kg	4.86	1
SD-HTB	Barium	mg/kg	157	1
SD-HTB	Beryllium	mg/kg	0.62	1
SD-HTB	Cadmium	mg/kg	0.489	1
SD-HTB	Calcium	mg/kg	9520	1
SD-HTB	Chromium	mg/kg	25.2	1
SD-HTB	Cobalt	mg/kg	11.7	1
SD-HTB	Copper	mg/kg	29.7	1
SD-HTB	Iron	mg/kg	26800	1
SD-HTB	Lead	mg/kg	20.6	1
SD-HTB	Magnesium	mg/kg	9020	1
SD-HTB	Manganese	mg/kg	493	1
SD-HTB	Mercury	mg/kg	0.029	1
SD-HTB	Nickel	mg/kg	28.7	1
SD-HTB	Potassium	mg/kg	2810	1
SD-HTB	Selenium	mg/kg	0.2	0
SD-HTB	Silver	mg/kg	0.128	1
SD-HTB	Sodium	mg/kg	257	1
SD-HTB	Thallium	mg/kg	0.24	1
SD-HTB	Vanadium	mg/kg	29.2	1
SD-HTB	Zinc	mg/kg	102	1
SD-HTC	Aluminum	mg/kg	17700	1
SD-HTC	Antimony	mg/kg	0.289	1
SD-HTC	Arsenic	mg/kg	5.28	1
SD-HTC	Barium	mg/kg	171	1
SD-HTC	Beryllium	mg/kg	0.67	1
SD-HTC	Cadmium	mg/kg	0.917	1
SD-HTC	Calcium	mg/kg	8830	1
SD-HTC	Chromium	mg/kg	31.6	1
SD-HTC	Cobalt	mg/kg	12.1	1
SD-HTC	Copper	mg/kg	31.9	1
SD-HTC	Iron	mg/kg	28100	1
SD-HTC	Lead	mg/kg	27.3	1
SD-HTC	Magnesium	mg/kg	9360	1
SD-HTC	Manganese	mg/kg	544	1
SD-HTC	Mercury	mg/kg	0.029	1
SD-HTC	Nickel	mg/kg	29.5	1
SD-HTC	Potassium	mg/kg	3340	1
SD-HTC	Selenium	mg/kg	0.2	0
SD-HTC	Silver	mg/kg	0.127	1
SD-HTC	Sodium	mg/kg	279	1
SD-HTC	Thallium	mg/kg	0.413	1
SD-HTC	Vanadium	mg/kg	36.7	1
SD-HTC	Zinc	mg/kg	123	1
SD-HTD	Aluminum	mg/kg	15300	1
SD-HTD	Antimony	mg/kg	0.257	1
SD-HTD	Arsenic	mg/kg	4.26	1
SD-HTD	Barium	mg/kg	138	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-HTD	Beryllium	mg/kg	0.56	1
SD-HTD	Cadmium	mg/kg	0.319	1
SD-HTD	Calcium	mg/kg	7730	1
SD-HTD	Chromium	mg/kg	23.2	1
SD-HTD	Cobalt	mg/kg	11.6	1
SD-HTD	Copper	mg/kg	28	1
SD-HTD	Iron	mg/kg	26300	1
SD-HTD	Lead	mg/kg	14	1
SD-HTD	Magnesium	mg/kg	7860	1
SD-HTD	Manganese	mg/kg	495	1
SD-HTD	Mercury	mg/kg	0.013	1
SD-HTD	Nickel	mg/kg	27.2	1
SD-HTD	Potassium	mg/kg	2690	1
SD-HTD	Selenium	mg/kg	0.2	0
SD-HTD	Silver	mg/kg	0.098	1
SD-HTD	Sodium	mg/kg	260	1
SD-HTD	Thallium	mg/kg	0.242	1
SD-HTD	Vanadium	mg/kg	27.8	1
SD-HTD	Zinc	mg/kg	82.8	1
SD-HTE	Aluminum	mg/kg	8210	1
SD-HTE	Antimony	mg/kg	0.227	1
SD-HTE	Arsenic	mg/kg	6.64	1
SD-HTE	Barium	mg/kg	56.3	1
SD-HTE	Beryllium	mg/kg	0.34	1
SD-HTE	Cadmium	mg/kg	0.074	1
SD-HTE	Calcium	mg/kg	14400	1
SD-HTE	Chromium	mg/kg	6.93	1
SD-HTE	Cobalt	mg/kg	4.46	1
SD-HTE	Copper	mg/kg	12.4	1
SD-HTE	Iron	mg/kg	17800	1
SD-HTE	Lead	mg/kg	6.4	1
SD-HTE	Magnesium	mg/kg	6860	1
SD-HTE	Manganese	mg/kg	318	1
SD-HTE	Mercury	mg/kg	0.003	1
SD-HTE	Nickel	mg/kg	7.48	1
SD-HTE	Potassium	mg/kg	1740	1
SD-HTE	Selenium	mg/kg	0.2	0
SD-HTE	Silver	mg/kg	0.052	0
SD-HTE	Sodium	mg/kg	115	1
SD-HTE	Thallium	mg/kg	0.093	1
SD-HTE	Vanadium	mg/kg	11.9	1
SD-HTE	Zinc	mg/kg	40	1
SD-JBA	Aluminum	mg/kg	7720	1
SD-JBA	Antimony	mg/kg	0.146	1
SD-JBA	Arsenic	mg/kg	6.27	1
SD-JBA	Barium	mg/kg	56.4	1
SD-JBA	Beryllium	mg/kg	0.31	1
SD-JBA	Cadmium	mg/kg	0.124	1
SD-JBA	Calcium	mg/kg	11100	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-JBA	Chromium	mg/kg	8.5	1
SD-JBA	Cobalt	mg/kg	4.62	1
SD-JBA	Copper	mg/kg	10.1	1
SD-JBA	Iron	mg/kg	14500	1
SD-JBA	Lead	mg/kg	5.79	1
SD-JBA	Magnesium	mg/kg	6390	1
SD-JBA	Manganese	mg/kg	248	1
SD-JBA	Mercury	mg/kg	0.003	1
SD-JBA	Nickel	mg/kg	9.93	1
SD-JBA	Potassium	mg/kg	1390	1
SD-JBA	Selenium	mg/kg	0.2	0
SD-JBA	Silver	mg/kg	0.042	1
SD-JBA	Sodium	mg/kg	147	1
SD-JBA	Thallium	mg/kg	0.095	1
SD-JBA	Vanadium	mg/kg	11.3	1
SD-JBA	Zinc	mg/kg	37.1	1
SD-JBB	Aluminum	mg/kg	6870	1
SD-JBB	Antimony	mg/kg	0.17	1
SD-JBB	Arsenic	mg/kg	5.96	1
SD-JBB	Barium	mg/kg	47	1
SD-JBB	Beryllium	mg/kg	0.27	1
SD-JBB	Cadmium	mg/kg	0.084	1
SD-JBB	Calcium	mg/kg	10100	1
SD-JBB	Chromium	mg/kg	8.43	1
SD-JBB	Cobalt	mg/kg	4.72	1
SD-JBB	Copper	mg/kg	9.6	1
SD-JBB	Iron	mg/kg	13800	1
SD-JBB	Lead	mg/kg	5.15	1
SD-JBB	Magnesium	mg/kg	5850	1
SD-JBB	Manganese	mg/kg	251	1
SD-JBB	Mercury	mg/kg	0.003	1
SD-JBB	Nickel	mg/kg	9.21	1
SD-JBB	Potassium	mg/kg	1220	1
SD-JBB	Selenium	mg/kg	0.2	0
SD-JBB	Silver	mg/kg	0.038	1
SD-JBB	Sodium	mg/kg	133	1
SD-JBB	Thallium	mg/kg	0.087	1
SD-JBB	Vanadium	mg/kg	11.8	1
SD-JBB	Zinc	mg/kg	34.5	1
SD-JBC	Aluminum	mg/kg	7260	1
SD-JBC	Antimony	mg/kg	0.134	1
SD-JBC	Arsenic	mg/kg	5.68	1
SD-JBC	Barium	mg/kg	54.5	1
SD-JBC	Beryllium	mg/kg	0.29	1
SD-JBC	Cadmium	mg/kg	0.105	1
SD-JBC	Calcium	mg/kg	10000	1
SD-JBC	Chromium	mg/kg	8.77	1
SD-JBC	Cobalt	mg/kg	4.15	1
SD-JBC	Copper	mg/kg	9.4	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SD-JBC	Iron	mg/kg	14300	1
SD-JBC	Lead	mg/kg	5.23	1
SD-JBC	Magnesium	mg/kg	5930	1
SD-JBC	Manganese	mg/kg	249	1
SD-JBC	Mercury	mg/kg	0.003	1
SD-JBC	Nickel	mg/kg	9.21	1
SD-JBC	Potassium	mg/kg	1340	1
SD-JBC	Selenium	mg/kg	0.2	0
SD-JBC	Silver	mg/kg	0.038	1
SD-JBC	Sodium	mg/kg	141	1
SD-JBC	Thallium	mg/kg	0.088	1
SD-JBC	Vanadium	mg/kg	11.7	1
SD-JBC	Zinc	mg/kg	35.3	1
SD-JBD	Aluminum	mg/kg	7590	1
SD-JBD	Antimony	mg/kg	0.141	1
SD-JBD	Arsenic	mg/kg	6.51	1
SD-JBD	Barium	mg/kg	46.2	1
SD-JBD	Beryllium	mg/kg	0.28	1
SD-JBD	Cadmium	mg/kg	0.09	1
SD-JBD	Calcium	mg/kg	9120	1
SD-JBD	Chromium	mg/kg	9.03	1
SD-JBD	Cobalt	mg/kg	3.92	1
SD-JBD	Copper	mg/kg	8.6	1
SD-JBD	Iron	mg/kg	14600	1
SD-JBD	Lead	mg/kg	5.37	1
SD-JBD	Magnesium	mg/kg	5930	1
SD-JBD	Manganese	mg/kg	244	1
SD-JBD	Mercury	mg/kg	0.002	1
SD-JBD	Nickel	mg/kg	9.07	1
SD-JBD	Potassium	mg/kg	1360	1
SD-JBD	Selenium	mg/kg	0.2	0
SD-JBD	Silver	mg/kg	0.034	1
SD-JBD	Sodium	mg/kg	121	1
SD-JBD	Thallium	mg/kg	0.097	1
SD-JBD	Vanadium	mg/kg	13.3	1
SD-JBD	Zinc	mg/kg	34.1	1
SD-JBE-1	Aluminum	mg/kg	7765	1
SD-JBE-1	Antimony	mg/kg	0.187	1
SD-JBE-1	Arsenic	mg/kg	5.925	1
SD-JBE-1	Barium	mg/kg	54.25	1
SD-JBE-1	Beryllium	mg/kg	0.31	1
SD-JBE-1	Cadmium	mg/kg	0.104	1
SD-JBE-1	Calcium	mg/kg	10280	1
SD-JBE-1	Chromium	mg/kg	9.475	1
SD-JBE-1	Cobalt	mg/kg	4.265	1
SD-JBE-1	Copper	mg/kg	8.5	1
SD-JBE-1	Iron	mg/kg	15350	1
SD-JBE-1	Lead	mg/kg	5.435	1
SD-JBE-1	Magnesium	mg/kg	6350	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SD-JBE-1	Manganese	mg/kg	263	1
SD-JBE-1	Mercury	mg/kg	0.0025	1
SD-JBE-1	Nickel	mg/kg	9.475	1
SD-JBE-1	Potassium	mg/kg	1365	1
SD-JBE-1	Selenium	mg/kg	0.2	0
SD-JBE-1	Silver	mg/kg	0.0465	1
SD-JBE-1	Sodium	mg/kg	123	1
SD-JBE-1	Thallium	mg/kg	0.085	1
SD-JBE-1	Vanadium	mg/kg	12.65	1
SD-JBE-1	Zinc	mg/kg	36.2	1
SD-KFA	Aluminum	mg/kg	5180	1
SD-KFA	Antimony	mg/kg	0.119	1
SD-KFA	Arsenic	mg/kg	1.67	1
SD-KFA	Barium	mg/kg	43.3	1
SD-KFA	Beryllium	mg/kg	0.13	1
SD-KFA	Cadmium	mg/kg	0.131	1
SD-KFA	Calcium	mg/kg	2870	1
SD-KFA	Chromium	mg/kg	7.21	1
SD-KFA	Cobalt	mg/kg	3.92	1
SD-KFA	Copper	mg/kg	10	1
SD-KFA	Iron	mg/kg	11700	1
SD-KFA	Lead	mg/kg	6.42	1
SD-KFA	Magnesium	mg/kg	3550	1
SD-KFA	Manganese	mg/kg	161	1
SD-KFA	Mercury	mg/kg	0.003	1
SD-KFA	Nickel	mg/kg	8.86	1
SD-KFA	Potassium	mg/kg	617	1
SD-KFA	Selenium	mg/kg	0.2	0
SD-KFA	Silver	mg/kg	0.075	1
SD-KFA	Sodium	mg/kg	115	1
SD-KFA	Thallium	mg/kg	0.079	1
SD-KFA	Vanadium	mg/kg	17.2	1
SD-KFA	Zinc	mg/kg	36	1
SD-KFB	Aluminum	mg/kg	4560	1
SD-KFB	Antimony	mg/kg	0.072	0
SD-KFB	Arsenic	mg/kg	1.68	1
SD-KFB	Barium	mg/kg	36.3	1
SD-KFB	Beryllium	mg/kg	0.11	1
SD-KFB	Cadmium	mg/kg	0.118	1
SD-KFB	Calcium	mg/kg	2370	1
SD-KFB	Chromium	mg/kg	7.94	1
SD-KFB	Cobalt	mg/kg	3.17	1
SD-KFB	Copper	mg/kg	9.2	1
SD-KFB	Iron	mg/kg	10600	1
SD-KFB	Lead	mg/kg	5.12	1
SD-KFB	Magnesium	mg/kg	2890	1
SD-KFB	Manganese	mg/kg	148	1
SD-KFB	Mercury	mg/kg	0.002	0
SD-KFB	Nickel	mg/kg	6.52	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-KFB	Potassium	mg/kg	569	1
SD-KFB	Selenium	mg/kg	0.2	0
SD-KFB	Silver	mg/kg	0.045	1
SD-KFB	Sodium	mg/kg	98	1
SD-KFB	Thallium	mg/kg	0.061	1
SD-KFB	Vanadium	mg/kg	17.6	1
SD-KFB	Zinc	mg/kg	28.7	1
SD-KFC	Aluminum	mg/kg	4800	1
SD-KFC	Antimony	mg/kg	0.088	0
SD-KFC	Arsenic	mg/kg	1.62	1
SD-KFC	Barium	mg/kg	41.5	1
SD-KFC	Beryllium	mg/kg	0.15	1
SD-KFC	Cadmium	mg/kg	0.126	1
SD-KFC	Calcium	mg/kg	2490	1
SD-KFC	Chromium	mg/kg	8.05	1
SD-KFC	Cobalt	mg/kg	3.32	1
SD-KFC	Copper	mg/kg	9.3	1
SD-KFC	Iron	mg/kg	11400	1
SD-KFC	Lead	mg/kg	5.18	1
SD-KFC	Magnesium	mg/kg	2980	1
SD-KFC	Manganese	mg/kg	151	1
SD-KFC	Mercury	mg/kg	0.002	0
SD-KFC	Nickel	mg/kg	7.46	1
SD-KFC	Potassium	mg/kg	599	1
SD-KFC	Selenium	mg/kg	0.2	0
SD-KFC	Silver	mg/kg	0.048	1
SD-KFC	Sodium	mg/kg	106	1
SD-KFC	Thallium	mg/kg	0.059	1
SD-KFC	Vanadium	mg/kg	15.8	1
SD-KFC	Zinc	mg/kg	34.2	1
SD-KFD	Aluminum	mg/kg	5250	1
SD-KFD	Antimony	mg/kg	0.148	1
SD-KFD	Arsenic	mg/kg	1.38	1
SD-KFD	Barium	mg/kg	40.3	1
SD-KFD	Beryllium	mg/kg	0.13	1
SD-KFD	Cadmium	mg/kg	0.125	1
SD-KFD	Calcium	mg/kg	2660	1
SD-KFD	Chromium	mg/kg	7.6	1
SD-KFD	Cobalt	mg/kg	3.09	1
SD-KFD	Copper	mg/kg	8.6	1
SD-KFD	Iron	mg/kg	11000	1
SD-KFD	Lead	mg/kg	4.94	1
SD-KFD	Magnesium	mg/kg	3120	1
SD-KFD	Manganese	mg/kg	152	1
SD-KFD	Mercury	mg/kg	0.006	1
SD-KFD	Nickel	mg/kg	7.19	1
SD-KFD	Potassium	mg/kg	638	1
SD-KFD	Selenium	mg/kg	0.2	0
SD-KFD	Silver	mg/kg	0.06	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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Sample ID	Analyte	Unit	Value	Detect
SD-KFD	Sodium	mg/kg	136	1
SD-KFD	Thallium	mg/kg	0.059	1
SD-KFD	Vanadium	mg/kg	18.7	1
SD-KFD	Zinc	mg/kg	33.8	1
SD-KFE	Aluminum	mg/kg	5290	1
SD-KFE	Antimony	mg/kg	0.079	0
SD-KFE	Arsenic	mg/kg	1.54	1
SD-KFE	Barium	mg/kg	61	1
SD-KFE	Beryllium	mg/kg	0.13	1
SD-KFE	Cadmium	mg/kg	0.12	1
SD-KFE	Calcium	mg/kg	2570	1
SD-KFE	Chromium	mg/kg	8.82	1
SD-KFE	Cobalt	mg/kg	3.74	1
SD-KFE	Copper	mg/kg	9.3	1
SD-KFE	Iron	mg/kg	11800	1
SD-KFE	Lead	mg/kg	5.27	1
SD-KFE	Magnesium	mg/kg	3330	1
SD-KFE	Manganese	mg/kg	161	1
SD-KFE	Mercury	mg/kg	0.002	1
SD-KFE	Nickel	mg/kg	7.57	1
SD-KFE	Potassium	mg/kg	643	1
SD-KFE	Selenium	mg/kg	0.2	0
SD-KFE	Silver	mg/kg	0.057	1
SD-KFE	Sodium	mg/kg	118	1
SD-KFE	Thallium	mg/kg	0.057	1
SD-KFE	Vanadium	mg/kg	17.3	1
SD-KFE	Zinc	mg/kg	33.3	1
SD-KLA	Aluminum	mg/kg	7050	1
SD-KLA	Antimony	mg/kg	0.048	1
SD-KLA	Arsenic	mg/kg	3.65	1
SD-KLA	Barium	mg/kg	55.6	1
SD-KLA	Beryllium	mg/kg	0.23	1
SD-KLA	Cadmium	mg/kg	0.238	1
SD-KLA	Calcium	mg/kg	4020	1
SD-KLA	Chromium	mg/kg	14.5	1
SD-KLA	Cobalt	mg/kg	4.69	1
SD-KLA	Copper	mg/kg	11.2	1
SD-KLA	Iron	mg/kg	12400	1
SD-KLA	Lead	mg/kg	8.86	1
SD-KLA	Magnesium	mg/kg	4550	1
SD-KLA	Manganese	mg/kg	196	1
SD-KLA	Mercury	mg/kg	0.013	1
SD-KLA	Nickel	mg/kg	15.1	1
SD-KLA	Potassium	mg/kg	843	1
SD-KLA	Selenium	mg/kg	0.2	0
SD-KLA	Silver	mg/kg	0.075	1
SD-KLA	Sodium	mg/kg	162	1
SD-KLA	Thallium	mg/kg	0.104	1
SD-KLA	Vanadium	mg/kg	18.5	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-KLA	Zinc	mg/kg	50.9	1
SD-KLB	Aluminum	mg/kg	7550	1
SD-KLB	Antimony	mg/kg	0.057	1
SD-KLB	Arsenic	mg/kg	1.98	1
SD-KLB	Barium	mg/kg	61.7	1
SD-KLB	Beryllium	mg/kg	0.28	1
SD-KLB	Cadmium	mg/kg	0.238	1
SD-KLB	Calcium	mg/kg	4820	1
SD-KLB	Chromium	mg/kg	16	1
SD-KLB	Cobalt	mg/kg	4.86	1
SD-KLB	Copper	mg/kg	14.5	1
SD-KLB	Iron	mg/kg	13800	1
SD-KLB	Lead	mg/kg	9.25	1
SD-KLB	Magnesium	mg/kg	5090	1
SD-KLB	Manganese	mg/kg	207	1
SD-KLB	Mercury	mg/kg	0.018	1
SD-KLB	Nickel	mg/kg	12.9	1
SD-KLB	Potassium	mg/kg	926	1
SD-KLB	Selenium	mg/kg	0.2	1
SD-KLB	Silver	mg/kg	0.108	1
SD-KLB	Sodium	mg/kg	143	1
SD-KLB	Thallium	mg/kg	0.123	1
SD-KLB	Vanadium	mg/kg	21.8	1
SD-KLB	Zinc	mg/kg	53.8	1
SD-KLC	Aluminum	mg/kg	10400	1
SD-KLC	Antimony	mg/kg	0.114	1
SD-KLC	Arsenic	mg/kg	2.57	1
SD-KLC	Barium	mg/kg	94.6	1
SD-KLC	Beryllium	mg/kg	0.48	1
SD-KLC	Cadmium	mg/kg	0.458	1
SD-KLC	Calcium	mg/kg	5160	1
SD-KLC	Chromium	mg/kg	20.3	1
SD-KLC	Cobalt	mg/kg	6.34	1
SD-KLC	Copper	mg/kg	21.4	1
SD-KLC	Iron	mg/kg	18000	1
SD-KLC	Lead	mg/kg	15.2	1
SD-KLC	Magnesium	mg/kg	6160	1
SD-KLC	Manganese	mg/kg	269	1
SD-KLC	Mercury	mg/kg	0.04	1
SD-KLC	Nickel	mg/kg	16.4	1
SD-KLC	Potassium	mg/kg	1220	1
SD-KLC	Selenium	mg/kg	0.5	1
SD-KLC	Silver	mg/kg	0.179	1
SD-KLC	Sodium	mg/kg	183	1
SD-KLC	Thallium	mg/kg	0.18	1
SD-KLC	Vanadium	mg/kg	29.9	1
SD-KLC	Zinc	mg/kg	81.4	1
SD-KLD	Aluminum	mg/kg	7910	1
SD-KLD	Antimony	mg/kg	0.081	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-KLD	Arsenic	mg/kg	2.23	1
SD-KLD	Barium	mg/kg	74.3	1
SD-KLD	Beryllium	mg/kg	0.3	1
SD-KLD	Cadmium	mg/kg	0.373	1
SD-KLD	Calcium	mg/kg	4180	1
SD-KLD	Chromium	mg/kg	15.4	1
SD-KLD	Cobalt	mg/kg	5.8	1
SD-KLD	Copper	mg/kg	15.9	1
SD-KLD	Iron	mg/kg	14800	1
SD-KLD	Lead	mg/kg	11.8	1
SD-KLD	Magnesium	mg/kg	5290	1
SD-KLD	Manganese	mg/kg	241	1
SD-KLD	Mercury	mg/kg	0.022	1
SD-KLD	Nickel	mg/kg	15.6	1
SD-KLD	Potassium	mg/kg	1050	1
SD-KLD	Selenium	mg/kg	0.2	1
SD-KLD	Silver	mg/kg	0.127	1
SD-KLD	Sodium	mg/kg	116	1
SD-KLD	Thallium	mg/kg	0.148	1
SD-KLD	Vanadium	mg/kg	22.3	1
SD-KLD	Zinc	mg/kg	61.9	1
SD-KLE	Aluminum	mg/kg	7220	1
SD-KLE	Antimony	mg/kg	0.048	1
SD-KLE	Arsenic	mg/kg	1.73	1
SD-KLE	Barium	mg/kg	64.9	1
SD-KLE	Beryllium	mg/kg	0.28	1
SD-KLE	Cadmium	mg/kg	0.239	1
SD-KLE	Calcium	mg/kg	5830	1
SD-KLE	Chromium	mg/kg	11.7	1
SD-KLE	Cobalt	mg/kg	5.1	1
SD-KLE	Copper	mg/kg	13	1
SD-KLE	Iron	mg/kg	13500	1
SD-KLE	Lead	mg/kg	8.15	1
SD-KLE	Magnesium	mg/kg	5240	1
SD-KLE	Manganese	mg/kg	219	1
SD-KLE	Mercury	mg/kg	0.018	1
SD-KLE	Nickel	mg/kg	14.1	1
SD-KLE	Potassium	mg/kg	881	1
SD-KLE	Selenium	mg/kg	0.2	1
SD-KLE	Silver	mg/kg	0.102	1
SD-KLE	Sodium	mg/kg	158	1
SD-KLE	Thallium	mg/kg	0.102	1
SD-KLE	Vanadium	mg/kg	19.2	1
SD-KLE	Zinc	mg/kg	49.4	1
SD-MGA	Aluminum	mg/kg	7880	1
SD-MGA	Antimony	mg/kg	0.239	1
SD-MGA	Arsenic	mg/kg	4.44	1
SD-MGA	Barium	mg/kg	69.1	1
SD-MGA	Beryllium	mg/kg	0.31	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-MGA	Cadmium	mg/kg	0.127	1
SD-MGA	Calcium	mg/kg	6550	1
SD-MGA	Chromium	mg/kg	12.1	1
SD-MGA	Cobalt	mg/kg	6.55	1
SD-MGA	Copper	mg/kg	15.2	1
SD-MGA	Iron	mg/kg	17600	1
SD-MGA	Lead	mg/kg	6.77	1
SD-MGA	Magnesium	mg/kg	4860	1
SD-MGA	Manganese	mg/kg	277	1
SD-MGA	Mercury	mg/kg	0.007	1
SD-MGA	Nickel	mg/kg	14.5	1
SD-MGA	Potassium	mg/kg	1180	1
SD-MGA	Selenium	mg/kg	0.2	0
SD-MGA	Silver	mg/kg	0.057	0
SD-MGA	Sodium	mg/kg	121	1
SD-MGA	Thallium	mg/kg	0.086	1
SD-MGA	Vanadium	mg/kg	15.3	1
SD-MGA	Zinc	mg/kg	43.8	1
SD-MGB	Aluminum	mg/kg	7350	1
SD-MGB	Antimony	mg/kg	0.242	1
SD-MGB	Arsenic	mg/kg	4.44	1
SD-MGB	Barium	mg/kg	72	1
SD-MGB	Beryllium	mg/kg	0.3	1
SD-MGB	Cadmium	mg/kg	0.121	1
SD-MGB	Calcium	mg/kg	4120	1
SD-MGB	Chromium	mg/kg	14.5	1
SD-MGB	Cobalt	mg/kg	6.68	1
SD-MGB	Copper	mg/kg	14.4	1
SD-MGB	Iron	mg/kg	17700	1
SD-MGB	Lead	mg/kg	6.3	1
SD-MGB	Magnesium	mg/kg	4360	1
SD-MGB	Manganese	mg/kg	308	1
SD-MGB	Mercury	mg/kg	0.006	1
SD-MGB	Nickel	mg/kg	15.4	1
SD-MGB	Potassium	mg/kg	1110	1
SD-MGB	Selenium	mg/kg	0.2	0
SD-MGB	Silver	mg/kg	0.056	0
SD-MGB	Sodium	mg/kg	111	1
SD-MGB	Thallium	mg/kg	0.094	1
SD-MGB	Vanadium	mg/kg	16.5	1
SD-MGB	Zinc	mg/kg	43.4	1
SD-MGC	Aluminum	mg/kg	7690	1
SD-MGC	Antimony	mg/kg	0.215	1
SD-MGC	Arsenic	mg/kg	4.16	1
SD-MGC	Barium	mg/kg	71.5	1
SD-MGC	Beryllium	mg/kg	0.29	1
SD-MGC	Cadmium	mg/kg	0.14	1
SD-MGC	Calcium	mg/kg	4180	1
SD-MGC	Chromium	mg/kg	12.5	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-MGC	Cobalt	mg/kg	6.35	1
SD-MGC	Copper	mg/kg	13.8	1
SD-MGC	Iron	mg/kg	17300	1
SD-MGC	Lead	mg/kg	6.86	1
SD-MGC	Magnesium	mg/kg	4510	1
SD-MGC	Manganese	mg/kg	239	1
SD-MGC	Mercury	mg/kg	0.006	1
SD-MGC	Nickel	mg/kg	14.5	1
SD-MGC	Potassium	mg/kg	1240	1
SD-MGC	Selenium	mg/kg	0.2	0
SD-MGC	Silver	mg/kg	0.064	1
SD-MGC	Sodium	mg/kg	103	1
SD-MGC	Thallium	mg/kg	0.11	1
SD-MGC	Vanadium	mg/kg	15.1	1
SD-MGC	Zinc	mg/kg	47.4	1
SD-MGD	Aluminum	mg/kg	7280	1
SD-MGD	Antimony	mg/kg	0.217	1
SD-MGD	Arsenic	mg/kg	3.95	1
SD-MGD	Barium	mg/kg	75.4	1
SD-MGD	Beryllium	mg/kg	0.29	1
SD-MGD	Cadmium	mg/kg	0.163	1
SD-MGD	Calcium	mg/kg	5660	1
SD-MGD	Chromium	mg/kg	12.2	1
SD-MGD	Cobalt	mg/kg	6.11	1
SD-MGD	Copper	mg/kg	14.4	1
SD-MGD	Iron	mg/kg	16900	1
SD-MGD	Lead	mg/kg	7.07	1
SD-MGD	Magnesium	mg/kg	4600	1
SD-MGD	Manganese	mg/kg	261	1
SD-MGD	Mercury	mg/kg	0.006	1
SD-MGD	Nickel	mg/kg	14.3	1
SD-MGD	Potassium	mg/kg	1160	1
SD-MGD	Selenium	mg/kg	0.2	0
SD-MGD	Silver	mg/kg	0.052	0
SD-MGD	Sodium	mg/kg	106	1
SD-MGD	Thallium	mg/kg	0.1	1
SD-MGD	Vanadium	mg/kg	14.8	1
SD-MGD	Zinc	mg/kg	45.8	1
SD-MGE	Aluminum	mg/kg	8620	1
SD-MGE	Antimony	mg/kg	0.26	1
SD-MGE	Arsenic	mg/kg	4.46	1
SD-MGE	Barium	mg/kg	81.2	1
SD-MGE	Beryllium	mg/kg	0.35	1
SD-MGE	Cadmium	mg/kg	0.145	1
SD-MGE	Calcium	mg/kg	6050	1
SD-MGE	Chromium	mg/kg	12.4	1
SD-MGE	Cobalt	mg/kg	6.36	1
SD-MGE	Copper	mg/kg	15	1
SD-MGE	Iron	mg/kg	17800	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-MGE	Lead	mg/kg	8.38	1
SD-MGE	Magnesium	mg/kg	4770	1
SD-MGE	Manganese	mg/kg	289	1
SD-MGE	Mercury	mg/kg	0.006	1
SD-MGE	Nickel	mg/kg	14.1	1
SD-MGE	Potassium	mg/kg	1330	1
SD-MGE	Selenium	mg/kg	0.2	0
SD-MGE	Silver	mg/kg	0.061	1
SD-MGE	Sodium	mg/kg	107	1
SD-MGE	Thallium	mg/kg	0.107	1
SD-MGE	Vanadium	mg/kg	15.5	1
SD-MGE	Zinc	mg/kg	46.5	1
SD-MPA	Aluminum	mg/kg	7470	1
SD-MPA	Antimony	mg/kg	0.306	1
SD-MPA	Arsenic	mg/kg	5.82	1
SD-MPA	Barium	mg/kg	75.4	1
SD-MPA	Beryllium	mg/kg	0.25	1
SD-MPA	Cadmium	mg/kg	0.142	1
SD-MPA	Calcium	mg/kg	7020	1
SD-MPA	Chromium	mg/kg	15.4	1
SD-MPA	Cobalt	mg/kg	7.46	1
SD-MPA	Copper	mg/kg	17.7	1
SD-MPA	Iron	mg/kg	18500	1
SD-MPA	Lead	mg/kg	7.69	1
SD-MPA	Magnesium	mg/kg	5000	1
SD-MPA	Manganese	mg/kg	289	1
SD-MPA	Mercury	mg/kg	0.006	1
SD-MPA	Nickel	mg/kg	17.9	1
SD-MPA	Potassium	mg/kg	1280	1
SD-MPA	Selenium	mg/kg	0.2	0
SD-MPA	Silver	mg/kg	0.103	1
SD-MPA	Sodium	mg/kg	124	1
SD-MPA	Thallium	mg/kg	0.108	1
SD-MPA	Vanadium	mg/kg	17.2	1
SD-MPA	Zinc	mg/kg	46	1
SD-MPB	Aluminum	mg/kg	8300	1
SD-MPB	Antimony	mg/kg	0.266	1
SD-MPB	Arsenic	mg/kg	5.46	1
SD-MPB	Barium	mg/kg	78.6	1
SD-MPB	Beryllium	mg/kg	0.28	1
SD-MPB	Cadmium	mg/kg	0.139	1
SD-MPB	Calcium	mg/kg	7920	1
SD-MPB	Chromium	mg/kg	16.2	1
SD-MPB	Cobalt	mg/kg	7.18	1
SD-MPB	Copper	mg/kg	18.8	1
SD-MPB	Iron	mg/kg	19100	1
SD-MPB	Lead	mg/kg	7.1	1
SD-MPB	Magnesium	mg/kg	5200	1
SD-MPB	Manganese	mg/kg	323	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SD-MPB	Mercury	mg/kg	0.006	1
SD-MPB	Nickel	mg/kg	19.9	1
SD-MPB	Potassium	mg/kg	1170	1
SD-MPB	Selenium	mg/kg	0.2	0
SD-MPB	Silver	mg/kg	0.104	1
SD-MPB	Sodium	mg/kg	119	1
SD-MPB	Thallium	mg/kg	0.087	1
SD-MPB	Vanadium	mg/kg	17.2	1
SD-MPB	Zinc	mg/kg	48.5	1
SD-MPC	Aluminum	mg/kg	8280	1
SD-MPC	Antimony	mg/kg	0.328	1
SD-MPC	Arsenic	mg/kg	6.09	1
SD-MPC	Barium	mg/kg	115	1
SD-MPC	Beryllium	mg/kg	0.29	1
SD-MPC	Cadmium	mg/kg	0.155	1
SD-MPC	Calcium	mg/kg	7440	1
SD-MPC	Chromium	mg/kg	15.7	1
SD-MPC	Cobalt	mg/kg	7.51	1
SD-MPC	Copper	mg/kg	19	1
SD-MPC	Iron	mg/kg	18600	1
SD-MPC	Lead	mg/kg	8.38	1
SD-MPC	Magnesium	mg/kg	5210	1
SD-MPC	Manganese	mg/kg	311	1
SD-MPC	Mercury	mg/kg	0.008	1
SD-MPC	Nickel	mg/kg	18.4	1
SD-MPC	Potassium	mg/kg	1290	1
SD-MPC	Selenium	mg/kg	0.2	0
SD-MPC	Silver	mg/kg	0.098	1
SD-MPC	Sodium	mg/kg	132	1
SD-MPC	Thallium	mg/kg	0.116	1
SD-MPC	Vanadium	mg/kg	17.2	1
SD-MPC	Zinc	mg/kg	50.1	1
SD-MPD-1	Aluminum	mg/kg	7555	1
SD-MPD-1	Antimony	mg/kg	0.2655	1
SD-MPD-1	Arsenic	mg/kg	5.325	1
SD-MPD-1	Barium	mg/kg	75.3	1
SD-MPD-1	Beryllium	mg/kg	0.255	1
SD-MPD-1	Cadmium	mg/kg	0.1275	1
SD-MPD-1	Calcium	mg/kg	6700	1
SD-MPD-1	Chromium	mg/kg	14.85	1
SD-MPD-1	Cobalt	mg/kg	7.165	1
SD-MPD-1	Copper	mg/kg	17.1	1
SD-MPD-1	Iron	mg/kg	17500	1
SD-MPD-1	Lead	mg/kg	7.145	1
SD-MPD-1	Magnesium	mg/kg	4880	1
SD-MPD-1	Manganese	mg/kg	301	1
SD-MPD-1	Mercury	mg/kg	0.007	1
SD-MPD-1	Nickel	mg/kg	18.4	1
SD-MPD-1	Potassium	mg/kg	1140	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SD-MPD-1	Selenium	mg/kg	0.2	0
SD-MPD-1	Silver	mg/kg	0.0785	1
SD-MPD-1	Sodium	mg/kg	122.5	1
SD-MPD-1	Thallium	mg/kg	0.087	1
SD-MPD-1	Vanadium	mg/kg	16.05	1
SD-MPD-1	Zinc	mg/kg	45.55	1
SD-MPE	Aluminum	mg/kg	6570	1
SD-MPE	Antimony	mg/kg	0.228	1
SD-MPE	Arsenic	mg/kg	5.28	1
SD-MPE	Barium	mg/kg	66.3	1
SD-MPE	Beryllium	mg/kg	0.19	1
SD-MPE	Cadmium	mg/kg	0.112	1
SD-MPE	Calcium	mg/kg	6060	1
SD-MPE	Chromium	mg/kg	15.1	1
SD-MPE	Cobalt	mg/kg	6.72	1
SD-MPE	Copper	mg/kg	16	1
SD-MPE	Iron	mg/kg	15400	1
SD-MPE	Lead	mg/kg	6.63	1
SD-MPE	Magnesium	mg/kg	4230	1
SD-MPE	Manganese	mg/kg	275	1
SD-MPE	Mercury	mg/kg	0.006	1
SD-MPE	Nickel	mg/kg	16.9	1
SD-MPE	Potassium	mg/kg	1040	1
SD-MPE	Selenium	mg/kg	0.2	0
SD-MPE	Silver	mg/kg	0.07	1
SD-MPE	Sodium	mg/kg	98	1
SD-MPE	Thallium	mg/kg	0.077	0
SD-MPE	Vanadium	mg/kg	16.1	1
SD-MPE	Zinc	mg/kg	39.5	1
SD-NAA	Aluminum	mg/kg	9080	1
SD-NAA	Antimony	mg/kg	0.206	1
SD-NAA	Arsenic	mg/kg	3.58	1
SD-NAA	Barium	mg/kg	106	1
SD-NAA	Beryllium	mg/kg	0.33	1
SD-NAA	Cadmium	mg/kg	0.394	1
SD-NAA	Calcium	mg/kg	2090	1
SD-NAA	Chromium	mg/kg	14.2	1
SD-NAA	Cobalt	mg/kg	5.78	1
SD-NAA	Copper	mg/kg	16.1	1
SD-NAA	Iron	mg/kg	15800	1
SD-NAA	Lead	mg/kg	13.1	1
SD-NAA	Magnesium	mg/kg	3580	1
SD-NAA	Manganese	mg/kg	204	1
SD-NAA	Mercury	mg/kg	0.015	1
SD-NAA	Nickel	mg/kg	14	1
SD-NAA	Potassium	mg/kg	1480	1
SD-NAA	Selenium	mg/kg	0.2	0
SD-NAA	Silver	mg/kg	0.06	1
SD-NAA	Sodium	mg/kg	94	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SD-NAA	Thallium	mg/kg	0.204	1
SD-NAA	Vanadium	mg/kg	16.8	1
SD-NAA	Zinc	mg/kg	80.9	1
SD-NAB	Aluminum	mg/kg	7680	1
SD-NAB	Antimony	mg/kg	0.177	1
SD-NAB	Arsenic	mg/kg	3.08	1
SD-NAB	Barium	mg/kg	79.4	1
SD-NAB	Beryllium	mg/kg	0.28	1
SD-NAB	Cadmium	mg/kg	0.489	1
SD-NAB	Calcium	mg/kg	1630	1
SD-NAB	Chromium	mg/kg	13.2	1
SD-NAB	Cobalt	mg/kg	5.04	1
SD-NAB	Copper	mg/kg	13.5	1
SD-NAB	Iron	mg/kg	14300	1
SD-NAB	Lead	mg/kg	17.4	1
SD-NAB	Magnesium	mg/kg	3380	1
SD-NAB	Manganese	mg/kg	168	1
SD-NAB	Mercury	mg/kg	0.015	1
SD-NAB	Nickel	mg/kg	11.9	1
SD-NAB	Potassium	mg/kg	1270	1
SD-NAB	Selenium	mg/kg	0.2	0
SD-NAB	Silver	mg/kg	0.057	1
SD-NAB	Sodium	mg/kg	66	1
SD-NAB	Thallium	mg/kg	0.298	1
SD-NAB	Vanadium	mg/kg	14.2	1
SD-NAB	Zinc	mg/kg	99.2	1
SD-NAD	Aluminum	mg/kg	7790	1
SD-NAD	Antimony	mg/kg	0.172	1
SD-NAD	Arsenic	mg/kg	2.84	1
SD-NAD	Barium	mg/kg	82.4	1
SD-NAD	Beryllium	mg/kg	0.29	1
SD-NAD	Cadmium	mg/kg	0.54	1
SD-NAD	Calcium	mg/kg	1520	1
SD-NAD	Chromium	mg/kg	11.6	1
SD-NAD	Cobalt	mg/kg	5.29	1
SD-NAD	Copper	mg/kg	13.7	1
SD-NAD	Iron	mg/kg	13900	1
SD-NAD	Lead	mg/kg	25.7	1
SD-NAD	Magnesium	mg/kg	3330	1
SD-NAD	Manganese	mg/kg	186	1
SD-NAD	Mercury	mg/kg	0.027	1
SD-NAD	Nickel	mg/kg	12.2	1
SD-NAD	Potassium	mg/kg	1460	1
SD-NAD	Selenium	mg/kg	0.2	0
SD-NAD	Silver	mg/kg	0.056	1
SD-NAD	Sodium	mg/kg	72	1
SD-NAD	Thallium	mg/kg	0.243	1
SD-NAD	Vanadium	mg/kg	13.4	1
SD-NAD	Zinc	mg/kg	112	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SD-NZA	Aluminum	mg/kg	7760	1
SD-NZA	Antimony	mg/kg	0.187	1
SD-NZA	Arsenic	mg/kg	6.57	1
SD-NZA	Barium	mg/kg	69.3	1
SD-NZA	Beryllium	mg/kg	0.26	1
SD-NZA	Cadmium	mg/kg	0.189	1
SD-NZA	Calcium	mg/kg	11600	1
SD-NZA	Chromium	mg/kg	19.1	1
SD-NZA	Cobalt	mg/kg	7.5	1
SD-NZA	Copper	mg/kg	18	1
SD-NZA	Iron	mg/kg	19000	1
SD-NZA	Lead	mg/kg	8.5	1
SD-NZA	Magnesium	mg/kg	5870	1
SD-NZA	Manganese	mg/kg	311	1
SD-NZA	Mercury	mg/kg	0.01	1
SD-NZA	Nickel	mg/kg	20.3	1
SD-NZA	Potassium	mg/kg	931	1
SD-NZA	Selenium	mg/kg	0.2	0
SD-NZA	Silver	mg/kg	0.095	1
SD-NZA	Sodium	mg/kg	121	1
SD-NZA	Thallium	mg/kg	0.081	1
SD-NZA	Vanadium	mg/kg	21.1	1
SD-NZA	Zinc	mg/kg	48.3	1
SD-NZB	Aluminum	mg/kg	6800	1
SD-NZB	Antimony	mg/kg	0.201	1
SD-NZB	Arsenic	mg/kg	5.25	1
SD-NZB	Barium	mg/kg	49	1
SD-NZB	Beryllium	mg/kg	0.2	1
SD-NZB	Cadmium	mg/kg	0.146	1
SD-NZB	Calcium	mg/kg	8990	1
SD-NZB	Chromium	mg/kg	15.8	1
SD-NZB	Cobalt	mg/kg	6.61	1
SD-NZB	Copper	mg/kg	14.4	1
SD-NZB	Iron	mg/kg	16700	1
SD-NZB	Lead	mg/kg	6.55	1
SD-NZB	Magnesium	mg/kg	5070	1
SD-NZB	Manganese	mg/kg	254	1
SD-NZB	Mercury	mg/kg	0.007	1
SD-NZB	Nickel	mg/kg	18	1
SD-NZB	Potassium	mg/kg	751	1
SD-NZB	Selenium	mg/kg	0.2	0
SD-NZB	Silver	mg/kg	0.083	1
SD-NZB	Sodium	mg/kg	112	1
SD-NZB	Thallium	mg/kg	0.06	1
SD-NZB	Vanadium	mg/kg	17.5	1
SD-NZB	Zinc	mg/kg	40.5	1
SD-NZC	Aluminum	mg/kg	7330	1
SD-NZC	Antimony	mg/kg	0.234	1
SD-NZC	Arsenic	mg/kg	6.02	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Sample ID	Analyte	Unit	Value	Detect
SD-NZC	Barium	mg/kg	56.8	1
SD-NZC	Beryllium	mg/kg	0.23	1
SD-NZC	Cadmium	mg/kg	0.143	1
SD-NZC	Calcium	mg/kg	10200	1
SD-NZC	Chromium	mg/kg	16.8	1
SD-NZC	Cobalt	mg/kg	7.16	1
SD-NZC	Copper	mg/kg	16.1	1
SD-NZC	Iron	mg/kg	17600	1
SD-NZC	Lead	mg/kg	7.43	1
SD-NZC	Magnesium	mg/kg	5470	1
SD-NZC	Manganese	mg/kg	292	1
SD-NZC	Mercury	mg/kg	0.007	1
SD-NZC	Nickel	mg/kg	19.7	1
SD-NZC	Potassium	mg/kg	818	1
SD-NZC	Selenium	mg/kg	0.2	0
SD-NZC	Silver	mg/kg	0.097	1
SD-NZC	Sodium	mg/kg	113	1
SD-NZC	Thallium	mg/kg	0.061	1
SD-NZC	Vanadium	mg/kg	19.1	1
SD-NZC	Zinc	mg/kg	42.6	1
SD-NZD	Aluminum	mg/kg	8370	1
SD-NZD	Antimony	mg/kg	0.186	1
SD-NZD	Arsenic	mg/kg	5.36	1
SD-NZD	Barium	mg/kg	64.1	1
SD-NZD	Beryllium	mg/kg	0.3	1
SD-NZD	Cadmium	mg/kg	0.185	1
SD-NZD	Calcium	mg/kg	11000	1
SD-NZD	Chromium	mg/kg	18.6	1
SD-NZD	Cobalt	mg/kg	7.42	1
SD-NZD	Copper	mg/kg	17.3	1
SD-NZD	Iron	mg/kg	18400	1
SD-NZD	Lead	mg/kg	7.71	1
SD-NZD	Magnesium	mg/kg	6010	1
SD-NZD	Manganese	mg/kg	309	1
SD-NZD	Mercury	mg/kg	0.009	1
SD-NZD	Nickel	mg/kg	21.1	1
SD-NZD	Potassium	mg/kg	1000	1
SD-NZD	Selenium	mg/kg	0.2	0
SD-NZD	Silver	mg/kg	0.092	1
SD-NZD	Sodium	mg/kg	128	1
SD-NZD	Thallium	mg/kg	0.084	1
SD-NZD	Vanadium	mg/kg	20.4	1
SD-NZD	Zinc	mg/kg	50	1
SD-NZE-1	Aluminum	mg/kg	8155	1
SD-NZE-1	Antimony	mg/kg	0.191	1
SD-NZE-1	Arsenic	mg/kg	5.905	1
SD-NZE-1	Barium	mg/kg	73.05	1
SD-NZE-1	Beryllium	mg/kg	0.28	1
SD-NZE-1	Cadmium	mg/kg	0.2185	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Appendix C, Attachment C2

Sample ID	Analyte	Unit	Value	Detect
SD-NZE-1	Calcium	mg/kg	9665	1
SD-NZE-1	Chromium	mg/kg	19.85	1
SD-NZE-1	Cobalt	mg/kg	7.61	1
SD-NZE-1	Copper	mg/kg	18	1
SD-NZE-1	Iron	mg/kg	19150	1
SD-NZE-1	Lead	mg/kg	8.995	1
SD-NZE-1	Magnesium	mg/kg	6065	1
SD-NZE-1	Manganese	mg/kg	318	1
SD-NZE-1	Mercury	mg/kg	0.009	1
SD-NZE-1	Nickel	mg/kg	20.6	1
SD-NZE-1	Potassium	mg/kg	1010	1
SD-NZE-1	Selenium	mg/kg	0.2	0
SD-NZE-1	Silver	mg/kg	0.096	1
SD-NZE-1	Sodium	mg/kg	126	1
SD-NZE-1	Thallium	mg/kg	0.1	1
SD-NZE-1	Vanadium	mg/kg	22.45	1
SD-NZE-1	Zinc	mg/kg	52.9	1
SD-SBA	Aluminum	mg/kg	7820	1
SD-SBA	Antimony	mg/kg	0.206	1
SD-SBA	Arsenic	mg/kg	5.96	1
SD-SBA	Barium	mg/kg	47.9	1
SD-SBA	Beryllium	mg/kg	0.31	1
SD-SBA	Cadmium	mg/kg	0.071	1
SD-SBA	Calcium	mg/kg	13500	1
SD-SBA	Chromium	mg/kg	8.41	1
SD-SBA	Cobalt	mg/kg	4.55	1
SD-SBA	Copper	mg/kg	16.4	1
SD-SBA	Iron	mg/kg	17200	1
SD-SBA	Lead	mg/kg	5.64	1
SD-SBA	Magnesium	mg/kg	6340	1
SD-SBA	Manganese	mg/kg	269	1
SD-SBA	Mercury	mg/kg	0.003	1
SD-SBA	Nickel	mg/kg	7.99	1
SD-SBA	Potassium	mg/kg	1430	1
SD-SBA	Selenium	mg/kg	0.2	0
SD-SBA	Silver	mg/kg	0.036	0
SD-SBA	Sodium	mg/kg	92	1
SD-SBA	Thallium	mg/kg	0.103	1
SD-SBA	Vanadium	mg/kg	12.6	1
SD-SBA	Zinc	mg/kg	40.9	1
SD-SBB	Aluminum	mg/kg	8220	1
SD-SBB	Antimony	mg/kg	0.244	1
SD-SBB	Arsenic	mg/kg	5.7	1
SD-SBB	Barium	mg/kg	58.1	1
SD-SBB	Beryllium	mg/kg	0.35	1
SD-SBB	Cadmium	mg/kg	0.076	1
SD-SBB	Calcium	mg/kg	13200	1
SD-SBB	Chromium	mg/kg	8.67	1
SD-SBB	Cobalt	mg/kg	4.5	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-SBB	Copper	mg/kg	10.7	1
SD-SBB	Iron	mg/kg	18400	1
SD-SBB	Lead	mg/kg	6.87	1
SD-SBB	Magnesium	mg/kg	6670	1
SD-SBB	Manganese	mg/kg	273	1
SD-SBB	Mercury	mg/kg	0.002	0
SD-SBB	Nickel	mg/kg	7.17	1
SD-SBB	Potassium	mg/kg	1670	1
SD-SBB	Selenium	mg/kg	0.2	0
SD-SBB	Silver	mg/kg	0.045	0
SD-SBB	Sodium	mg/kg	119	1
SD-SBB	Thallium	mg/kg	0.096	1
SD-SBB	Vanadium	mg/kg	12.6	1
SD-SBB	Zinc	mg/kg	40.1	1
SD-SBC-1	Aluminum	mg/kg	12955	1
SD-SBC-1	Antimony	mg/kg	0.5425	1
SD-SBC-1	Arsenic	mg/kg	5.35	1
SD-SBC-1	Barium	mg/kg	107.35	1
SD-SBC-1	Beryllium	mg/kg	0.515	1
SD-SBC-1	Cadmium	mg/kg	0.3605	1
SD-SBC-1	Calcium	mg/kg	9385	1
SD-SBC-1	Chromium	mg/kg	19.42	1
SD-SBC-1	Cobalt	mg/kg	8.54	1
SD-SBC-1	Copper	mg/kg	21.7	1
SD-SBC-1	Iron	mg/kg	23250	1
SD-SBC-1	Lead	mg/kg	16.025	1
SD-SBC-1	Magnesium	mg/kg	7940	1
SD-SBC-1	Manganese	mg/kg	399	1
SD-SBC-1	Mercury	mg/kg	0.0215	1
SD-SBC-1	Nickel	mg/kg	20.84	1
SD-SBC-1	Potassium	mg/kg	2530	1
SD-SBC-1	Selenium	mg/kg	0.2	0
SD-SBC-1	Silver	mg/kg	0.2095	1
SD-SBC-1	Sodium	mg/kg	191.5	1
SD-SBC-1	Thallium	mg/kg	0.203	1
SD-SBC-1	Vanadium	mg/kg	23.75	1
SD-SBC-1	Zinc	mg/kg	77.3	1
SD-SBD	Aluminum	mg/kg	7170	1
SD-SBD	Antimony	mg/kg	0.189	1
SD-SBD	Arsenic	mg/kg	5.47	1
SD-SBD	Barium	mg/kg	46.6	1
SD-SBD	Beryllium	mg/kg	0.31	1
SD-SBD	Cadmium	mg/kg	0.076	1
SD-SBD	Calcium	mg/kg	12500	1
SD-SBD	Chromium	mg/kg	6.6	1
SD-SBD	Cobalt	mg/kg	4.44	1
SD-SBD	Copper	mg/kg	10.9	1
SD-SBD	Iron	mg/kg	15500	1
SD-SBD	Lead	mg/kg	5.34	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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Sample ID	Analyte	Unit	Value	Detect
SD-SBD	Magnesium	mg/kg	6870	1
SD-SBD	Manganese	mg/kg	270	1
SD-SBD	Mercury	mg/kg	0.003	1
SD-SBD	Nickel	mg/kg	6.68	1
SD-SBD	Potassium	mg/kg	1180	1
SD-SBD	Selenium	mg/kg	0.2	0
SD-SBD	Silver	mg/kg	0.04	0
SD-SBD	Sodium	mg/kg	72	1
SD-SBD	Thallium	mg/kg	0.084	1
SD-SBD	Vanadium	mg/kg	10.4	1
SD-SBD	Zinc	mg/kg	35.6	1
SD-SBE	Aluminum	mg/kg	7330	1
SD-SBE	Antimony	mg/kg	0.199	1
SD-SBE	Arsenic	mg/kg	6	1
SD-SBE	Barium	mg/kg	50.6	1
SD-SBE	Beryllium	mg/kg	0.31	1
SD-SBE	Cadmium	mg/kg	0.079	1
SD-SBE	Calcium	mg/kg	12700	1
SD-SBE	Chromium	mg/kg	7.52	1
SD-SBE	Cobalt	mg/kg	5.56	1
SD-SBE	Copper	mg/kg	8.8	1
SD-SBE	Iron	mg/kg	15800	1
SD-SBE	Lead	mg/kg	5.49	1
SD-SBE	Magnesium	mg/kg	6330	1
SD-SBE	Manganese	mg/kg	255	1
SD-SBE	Mercury	mg/kg	0.002	0
SD-SBE	Nickel	mg/kg	7.16	1
SD-SBE	Potassium	mg/kg	1580	1
SD-SBE	Selenium	mg/kg	0.2	0
SD-SBE	Silver	mg/kg	0.041	0
SD-SBE	Sodium	mg/kg	91	1
SD-SBE	Thallium	mg/kg	0.105	1
SD-SBE	Vanadium	mg/kg	10.6	1
SD-SBE	Zinc	mg/kg	35.4	1
SD-SCA	Aluminum	mg/kg	8100	1
SD-SCA	Antimony	mg/kg	0.194	1
SD-SCA	Arsenic	mg/kg	8.16	1
SD-SCA	Barium	mg/kg	56.3	1
SD-SCA	Beryllium	mg/kg	0.31	1
SD-SCA	Cadmium	mg/kg	0.167	1
SD-SCA	Calcium	mg/kg	3680	1
SD-SCA	Chromium	mg/kg	7.43	1
SD-SCA	Cobalt	mg/kg	3.93	1
SD-SCA	Copper	mg/kg	9.9	1
SD-SCA	Iron	mg/kg	14700	1
SD-SCA	Lead	mg/kg	6.63	1
SD-SCA	Magnesium	mg/kg	6210	1
SD-SCA	Manganese	mg/kg	234	1
SD-SCA	Mercury	mg/kg	0.003	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-SCA	Nickel	mg/kg	8.03	1
SD-SCA	Potassium	mg/kg	1590	1
SD-SCA	Selenium	mg/kg	0.2	0
SD-SCA	Silver	mg/kg	0.04	1
SD-SCA	Sodium	mg/kg	140	1
SD-SCA	Thallium	mg/kg	0.151	1
SD-SCA	Vanadium	mg/kg	11.2	1
SD-SCA	Zinc	mg/kg	49.4	1
SD-SCB	Aluminum	mg/kg	8310	1
SD-SCB	Antimony	mg/kg	0.233	1
SD-SCB	Arsenic	mg/kg	9.19	1
SD-SCB	Barium	mg/kg	58	1
SD-SCB	Beryllium	mg/kg	0.33	1
SD-SCB	Cadmium	mg/kg	0.163	1
SD-SCB	Calcium	mg/kg	4090	1
SD-SCB	Chromium	mg/kg	8.32	1
SD-SCB	Cobalt	mg/kg	4.14	1
SD-SCB	Copper	mg/kg	8.3	1
SD-SCB	Iron	mg/kg	14800	1
SD-SCB	Lead	mg/kg	7	1
SD-SCB	Magnesium	mg/kg	6340	1
SD-SCB	Manganese	mg/kg	235	1
SD-SCB	Mercury	mg/kg	0.002	0
SD-SCB	Nickel	mg/kg	7.99	1
SD-SCB	Potassium	mg/kg	1530	1
SD-SCB	Selenium	mg/kg	0.2	0
SD-SCB	Silver	mg/kg	0.038	1
SD-SCB	Sodium	mg/kg	133	1
SD-SCB	Thallium	mg/kg	0.152	1
SD-SCB	Vanadium	mg/kg	11.2	1
SD-SCB	Zinc	mg/kg	47.8	1
SD-SCC	Aluminum	mg/kg	8060	1
SD-SCC	Antimony	mg/kg	0.172	1
SD-SCC	Arsenic	mg/kg	8.75	1
SD-SCC	Barium	mg/kg	54.3	1
SD-SCC	Beryllium	mg/kg	0.3	1
SD-SCC	Cadmium	mg/kg	0.188	1
SD-SCC	Calcium	mg/kg	3100	1
SD-SCC	Chromium	mg/kg	8.47	1
SD-SCC	Cobalt	mg/kg	3.93	1
SD-SCC	Copper	mg/kg	8	1
SD-SCC	Iron	mg/kg	14800	1
SD-SCC	Lead	mg/kg	7.21	1
SD-SCC	Magnesium	mg/kg	6100	1
SD-SCC	Manganese	mg/kg	227	1
SD-SCC	Mercury	mg/kg	0.004	1
SD-SCC	Nickel	mg/kg	8.2	1
SD-SCC	Potassium	mg/kg	1560	1
SD-SCC	Selenium	mg/kg	0.2	0

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-SCC	Silver	mg/kg	0.03	1
SD-SCC	Sodium	mg/kg	121	1
SD-SCC	Thallium	mg/kg	0.154	1
SD-SCC	Vanadium	mg/kg	11.9	1
SD-SCC	Zinc	mg/kg	53.1	1
SD-SCD	Aluminum	mg/kg	8330	1
SD-SCD	Antimony	mg/kg	0.182	1
SD-SCD	Arsenic	mg/kg	8.56	1
SD-SCD	Barium	mg/kg	57.9	1
SD-SCD	Beryllium	mg/kg	0.33	1
SD-SCD	Cadmium	mg/kg	0.165	1
SD-SCD	Calcium	mg/kg	5050	1
SD-SCD	Chromium	mg/kg	8.26	1
SD-SCD	Cobalt	mg/kg	3.98	1
SD-SCD	Copper	mg/kg	8.6	1
SD-SCD	Iron	mg/kg	15000	1
SD-SCD	Lead	mg/kg	6.84	1
SD-SCD	Magnesium	mg/kg	6440	1
SD-SCD	Manganese	mg/kg	247	1
SD-SCD	Mercury	mg/kg	0.002	1
SD-SCD	Nickel	mg/kg	7.86	1
SD-SCD	Potassium	mg/kg	1580	1
SD-SCD	Selenium	mg/kg	0.2	0
SD-SCD	Silver	mg/kg	0.032	1
SD-SCD	Sodium	mg/kg	139	1
SD-SCD	Thallium	mg/kg	0.133	1
SD-SCD	Vanadium	mg/kg	12.1	1
SD-SCD	Zinc	mg/kg	49.1	1
SD-SCE	Aluminum	mg/kg	8030	1
SD-SCE	Antimony	mg/kg	0.158	1
SD-SCE	Arsenic	mg/kg	8.01	1
SD-SCE	Barium	mg/kg	51.9	1
SD-SCE	Beryllium	mg/kg	0.33	1
SD-SCE	Cadmium	mg/kg	0.162	1
SD-SCE	Calcium	mg/kg	3690	1
SD-SCE	Chromium	mg/kg	9.11	1
SD-SCE	Cobalt	mg/kg	3.81	1
SD-SCE	Copper	mg/kg	8.3	1
SD-SCE	Iron	mg/kg	14300	1
SD-SCE	Lead	mg/kg	6.4	1
SD-SCE	Magnesium	mg/kg	6100	1
SD-SCE	Manganese	mg/kg	231	1
SD-SCE	Mercury	mg/kg	0.003	1
SD-SCE	Nickel	mg/kg	7.72	1
SD-SCE	Potassium	mg/kg	1570	1
SD-SCE	Selenium	mg/kg	0.2	0
SD-SCE	Silver	mg/kg	0.028	1
SD-SCE	Sodium	mg/kg	135	1
SD-SCE	Thallium	mg/kg	0.143	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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Sample ID	Analyte	Unit	Value	Detect
SD-SCE	Vanadium	mg/kg	12.1	1
SD-SCE	Zinc	mg/kg	49.1	1
SD-SWA	Aluminum	mg/kg	6750	1
SD-SWA	Antimony	mg/kg	0.205	1
SD-SWA	Arsenic	mg/kg	5.54	1
SD-SWA	Barium	mg/kg	54.2	1
SD-SWA	Beryllium	mg/kg	0.27	1
SD-SWA	Cadmium	mg/kg	0.112	1
SD-SWA	Calcium	mg/kg	13900	1
SD-SWA	Chromium	mg/kg	7.66	1
SD-SWA	Cobalt	mg/kg	3.8	1
SD-SWA	Copper	mg/kg	10.9	1
SD-SWA	Iron	mg/kg	12900	1
SD-SWA	Lead	mg/kg	5.68	1
SD-SWA	Magnesium	mg/kg	6060	1
SD-SWA	Manganese	mg/kg	241	1
SD-SWA	Mercury	mg/kg	0.003	1
SD-SWA	Nickel	mg/kg	7.77	1
SD-SWA	Potassium	mg/kg	1270	1
SD-SWA	Selenium	mg/kg	0.2	0
SD-SWA	Silver	mg/kg	0.036	1
SD-SWA	Sodium	mg/kg	128	1
SD-SWA	Thallium	mg/kg	0.094	1
SD-SWA	Vanadium	mg/kg	12	1
SD-SWA	Zinc	mg/kg	35.3	1
SD-SWB	Aluminum	mg/kg	6630	1
SD-SWB	Antimony	mg/kg	0.183	1
SD-SWB	Arsenic	mg/kg	4.73	1
SD-SWB	Barium	mg/kg	56	1
SD-SWB	Beryllium	mg/kg	0.27	1
SD-SWB	Cadmium	mg/kg	0.097	1
SD-SWB	Calcium	mg/kg	8260	1
SD-SWB	Chromium	mg/kg	8.19	1
SD-SWB	Cobalt	mg/kg	4.56	1
SD-SWB	Copper	mg/kg	10.8	1
SD-SWB	Iron	mg/kg	14200	1
SD-SWB	Lead	mg/kg	5.59	1
SD-SWB	Magnesium	mg/kg	5580	1
SD-SWB	Manganese	mg/kg	271	1
SD-SWB	Mercury	mg/kg	0.004	1
SD-SWB	Nickel	mg/kg	8.73	1
SD-SWB	Potassium	mg/kg	1400	1
SD-SWB	Selenium	mg/kg	0.2	0
SD-SWB	Silver	mg/kg	0.043	1
SD-SWB	Sodium	mg/kg	97	1
SD-SWB	Thallium	mg/kg	0.089	1
SD-SWB	Vanadium	mg/kg	11.6	1
SD-SWB	Zinc	mg/kg	40.3	1
SD-SWC	Aluminum	mg/kg	6700	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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Sample ID	Analyte	Unit	Value	Detect
SD-SWC	Antimony	mg/kg	0.179	1
SD-SWC	Arsenic	mg/kg	4.94	1
SD-SWC	Barium	mg/kg	54.9	1
SD-SWC	Beryllium	mg/kg	0.25	1
SD-SWC	Cadmium	mg/kg	0.121	1
SD-SWC	Calcium	mg/kg	7810	1
SD-SWC	Chromium	mg/kg	8.53	1
SD-SWC	Cobalt	mg/kg	4.1	1
SD-SWC	Copper	mg/kg	9.8	1
SD-SWC	Iron	mg/kg	14100	1
SD-SWC	Lead	mg/kg	5.74	1
SD-SWC	Magnesium	mg/kg	5580	1
SD-SWC	Manganese	mg/kg	246	1
SD-SWC	Mercury	mg/kg	0.002	1
SD-SWC	Nickel	mg/kg	7.96	1
SD-SWC	Potassium	mg/kg	1340	1
SD-SWC	Selenium	mg/kg	0.2	0
SD-SWC	Silver	mg/kg	0.039	1
SD-SWC	Sodium	mg/kg	98	1
SD-SWC	Thallium	mg/kg	0.115	1
SD-SWC	Vanadium	mg/kg	12.9	1
SD-SWC	Zinc	mg/kg	40.1	1
SD-SWD	Aluminum	mg/kg	6080	1
SD-SWD	Antimony	mg/kg	0.191	1
SD-SWD	Arsenic	mg/kg	4.51	1
SD-SWD	Barium	mg/kg	51.1	1
SD-SWD	Beryllium	mg/kg	0.26	1
SD-SWD	Cadmium	mg/kg	0.101	1
SD-SWD	Calcium	mg/kg	9620	1
SD-SWD	Chromium	mg/kg	7.4	1
SD-SWD	Cobalt	mg/kg	3.91	1
SD-SWD	Copper	mg/kg	10.1	1
SD-SWD	Iron	mg/kg	13200	1
SD-SWD	Lead	mg/kg	5.6	1
SD-SWD	Magnesium	mg/kg	5500	1
SD-SWD	Manganese	mg/kg	269	1
SD-SWD	Mercury	mg/kg	0.002	1
SD-SWD	Nickel	mg/kg	7.64	1
SD-SWD	Potassium	mg/kg	1190	1
SD-SWD	Selenium	mg/kg	0.2	0
SD-SWD	Silver	mg/kg	0.052	1
SD-SWD	Sodium	mg/kg	92	1
SD-SWD	Thallium	mg/kg	0.084	1
SD-SWD	Vanadium	mg/kg	10.7	1
SD-SWD	Zinc	mg/kg	37.4	1
SD-SWE	Aluminum	mg/kg	7230	1
SD-SWE	Antimony	mg/kg	0.15	1
SD-SWE	Arsenic	mg/kg	5.18	1
SD-SWE	Barium	mg/kg	56.8	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SD-SWE	Beryllium	mg/kg	0.26	1
SD-SWE	Cadmium	mg/kg	0.141	1
SD-SWE	Calcium	mg/kg	7260	1
SD-SWE	Chromium	mg/kg	8.72	1
SD-SWE	Cobalt	mg/kg	4.3	1
SD-SWE	Copper	mg/kg	10.5	1
SD-SWE	Iron	mg/kg	14400	1
SD-SWE	Lead	mg/kg	7.01	1
SD-SWE	Magnesium	mg/kg	5760	1
SD-SWE	Manganese	mg/kg	250	1
SD-SWE	Mercury	mg/kg	0.003	1
SD-SWE	Nickel	mg/kg	8.39	1
SD-SWE	Potassium	mg/kg	1450	1
SD-SWE	Selenium	mg/kg	0.2	0
SD-SWE	Silver	mg/kg	0.05	1
SD-SWE	Sodium	mg/kg	129	1
SD-SWE	Thallium	mg/kg	0.124	1
SD-SWE	Vanadium	mg/kg	13.2	1
SD-SWE	Zinc	mg/kg	43.8	1
SD-WCC	Aluminum	mg/kg	14300	1
SD-WCC	Antimony	mg/kg	0.239	1
SD-WCC	Arsenic	mg/kg	5.92	1
SD-WCC	Barium	mg/kg	126	1
SD-WCC	Beryllium	mg/kg	0.43	1
SD-WCC	Cadmium	mg/kg	0.805	1
SD-WCC	Calcium	mg/kg	5440	1
SD-WCC	Chromium	mg/kg	20.6	1
SD-WCC	Cobalt	mg/kg	8.54	1
SD-WCC	Copper	mg/kg	20.6	1
SD-WCC	Iron	mg/kg	20500	1
SD-WCC	Lead	mg/kg	39	1
SD-WCC	Magnesium	mg/kg	5500	1
SD-WCC	Manganese	mg/kg	282	1
SD-WCC	Mercury	mg/kg	0.06	1
SD-WCC	Nickel	mg/kg	19.6	1
SD-WCC	Potassium	mg/kg	2170	1
SD-WCC	Selenium	mg/kg	0.2	0
SD-WCC	Silver	mg/kg	0.129	1
SD-WCC	Sodium	mg/kg	165	1
SD-WCC	Thallium	mg/kg	0.301	1
SD-WCC	Vanadium	mg/kg	23.9	1
SD-WCC	Zinc	mg/kg	137	1
SD-WCD	Aluminum	mg/kg	11900	1
SD-WCD	Antimony	mg/kg	0.262	1
SD-WCD	Arsenic	mg/kg	6.72	1
SD-WCD	Barium	mg/kg	110	1
SD-WCD	Beryllium	mg/kg	0.39	1
SD-WCD	Cadmium	mg/kg	1.06	1
SD-WCD	Calcium	mg/kg	5570	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SD-WCD	Chromium	mg/kg	21.6	1
SD-WCD	Cobalt	mg/kg	8.92	1
SD-WCD	Copper	mg/kg	21.2	1
SD-WCD	Iron	mg/kg	21100	1
SD-WCD	Lead	mg/kg	37.6	1
SD-WCD	Magnesium	mg/kg	5890	1
SD-WCD	Manganese	mg/kg	300	1
SD-WCD	Mercury	mg/kg	0.057	1
SD-WCD	Nickel	mg/kg	20.9	1
SD-WCD	Potassium	mg/kg	1850	1
SD-WCD	Selenium	mg/kg	0.2	0
SD-WCD	Silver	mg/kg	0.122	1
SD-WCD	Sodium	mg/kg	144	1
SD-WCD	Thallium	mg/kg	0.338	1
SD-WCD	Vanadium	mg/kg	24.2	1
SD-WCD	Zinc	mg/kg	142	1
SD-WSA-1	Aluminum	mg/kg	8370	1
SD-WSA-1	Antimony	mg/kg	0.1495	1
SD-WSA-1	Arsenic	mg/kg	4.53	1
SD-WSA-1	Barium	mg/kg	50.1	1
SD-WSA-1	Beryllium	mg/kg	0.315	1
SD-WSA-1	Cadmium	mg/kg	0.2035	1
SD-WSA-1	Calcium	mg/kg	1855	1
SD-WSA-1	Chromium	mg/kg	10.365	1
SD-WSA-1	Cobalt	mg/kg	4.12	1
SD-WSA-1	Copper	mg/kg	8.45	1
SD-WSA-1	Iron	mg/kg	15250	1
SD-WSA-1	Lead	mg/kg	7.57	1
SD-WSA-1	Magnesium	mg/kg	5530	1
SD-WSA-1	Manganese	mg/kg	222	1
SD-WSA-1	Mercury	mg/kg	0.005	1
SD-WSA-1	Nickel	mg/kg	9.725	1
SD-WSA-1	Potassium	mg/kg	1500	1
SD-WSA-1	Selenium	mg/kg	0.2	0
SD-WSA-1	Silver	mg/kg	0.0365	1
SD-WSA-1	Sodium	mg/kg	107.5	1
SD-WSA-1	Thallium	mg/kg	0.1555	1
SD-WSA-1	Vanadium	mg/kg	12.55	1
SD-WSA-1	Zinc	mg/kg	50.25	1
SD-WSB	Aluminum	mg/kg	8820	1
SD-WSB	Antimony	mg/kg	0.224	1
SD-WSB	Arsenic	mg/kg	5.94	1
SD-WSB	Barium	mg/kg	49.6	1
SD-WSB	Beryllium	mg/kg	0.34	1
SD-WSB	Cadmium	mg/kg	0.149	1
SD-WSB	Calcium	mg/kg	2090	1
SD-WSB	Chromium	mg/kg	9.02	1
SD-WSB	Cobalt	mg/kg	4.01	1
SD-WSB	Copper	mg/kg	10.1	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SD-WSB	Iron	mg/kg	15400	1
SD-WSB	Lead	mg/kg	6.52	1
SD-WSB	Magnesium	mg/kg	5580	1
SD-WSB	Manganese	mg/kg	243	1
SD-WSB	Mercury	mg/kg	0.004	1
SD-WSB	Nickel	mg/kg	9.37	1
SD-WSB	Potassium	mg/kg	1550	1
SD-WSB	Selenium	mg/kg	0.2	0
SD-WSB	Silver	mg/kg	0.037	1
SD-WSB	Sodium	mg/kg	104	1
SD-WSB	Thallium	mg/kg	0.127	1
SD-WSB	Vanadium	mg/kg	12.3	1
SD-WSB	Zinc	mg/kg	40.3	1
SD-WSC	Aluminum	mg/kg	8590	1
SD-WSC	Antimony	mg/kg	0.182	1
SD-WSC	Arsenic	mg/kg	4.63	1
SD-WSC	Barium	mg/kg	52.1	1
SD-WSC	Beryllium	mg/kg	0.38	1
SD-WSC	Cadmium	mg/kg	0.164	1
SD-WSC	Calcium	mg/kg	2490	1
SD-WSC	Chromium	mg/kg	7.93	1
SD-WSC	Cobalt	mg/kg	4.71	1
SD-WSC	Copper	mg/kg	11.5	1
SD-WSC	Iron	mg/kg	17000	1
SD-WSC	Lead	mg/kg	6.66	1
SD-WSC	Magnesium	mg/kg	5890	1
SD-WSC	Manganese	mg/kg	245	1
SD-WSC	Mercury	mg/kg	0.004	1
SD-WSC	Nickel	mg/kg	10.5	1
SD-WSC	Potassium	mg/kg	1610	1
SD-WSC	Selenium	mg/kg	0.2	0
SD-WSC	Silver	mg/kg	0.042	1
SD-WSC	Sodium	mg/kg	110	1
SD-WSC	Thallium	mg/kg	0.142	1
SD-WSC	Vanadium	mg/kg	9.89	1
SD-WSC	Zinc	mg/kg	54.6	1
SD-WSD	Aluminum	mg/kg	7510	1
SD-WSD	Antimony	mg/kg	0.124	1
SD-WSD	Arsenic	mg/kg	3.21	1
SD-WSD	Barium	mg/kg	50.6	1
SD-WSD	Beryllium	mg/kg	0.29	1
SD-WSD	Cadmium	mg/kg	0.14	1
SD-WSD	Calcium	mg/kg	2090	1
SD-WSD	Chromium	mg/kg	6.93	1
SD-WSD	Cobalt	mg/kg	3.61	1
SD-WSD	Copper	mg/kg	8.1	1
SD-WSD	Iron	mg/kg	13200	1
SD-WSD	Lead	mg/kg	5.84	1
SD-WSD	Magnesium	mg/kg	4860	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SD-WSD	Manganese	mg/kg	193	1
SD-WSD	Mercury	mg/kg	0.002	1
SD-WSD	Nickel	mg/kg	7.7	1
SD-WSD	Potassium	mg/kg	1410	1
SD-WSD	Selenium	mg/kg	0.2	0
SD-WSD	Silver	mg/kg	0.046	1
SD-WSD	Sodium	mg/kg	92	1
SD-WSD	Thallium	mg/kg	0.105	1
SD-WSD	Vanadium	mg/kg	8.65	1
SD-WSD	Zinc	mg/kg	44.1	1
SD-WSE	Aluminum	mg/kg	7960	1
SD-WSE	Antimony	mg/kg	0.179	1
SD-WSE	Arsenic	mg/kg	4.1	1
SD-WSE	Barium	mg/kg	54.8	1
SD-WSE	Beryllium	mg/kg	0.37	1
SD-WSE	Cadmium	mg/kg	0.17	1
SD-WSE	Calcium	mg/kg	1860	1
SD-WSE	Chromium	mg/kg	8.44	1
SD-WSE	Cobalt	mg/kg	4.01	1
SD-WSE	Copper	mg/kg	11.3	1
SD-WSE	Iron	mg/kg	14400	1
SD-WSE	Lead	mg/kg	6.6	1
SD-WSE	Magnesium	mg/kg	5220	1
SD-WSE	Manganese	mg/kg	214	1
SD-WSE	Mercury	mg/kg	0.003	1
SD-WSE	Nickel	mg/kg	8.98	1
SD-WSE	Potassium	mg/kg	1400	1
SD-WSE	Selenium	mg/kg	0.2	0
SD-WSE	Silver	mg/kg	0.033	1
SD-WSE	Sodium	mg/kg	112	1
SD-WSE	Thallium	mg/kg	0.142	1
SD-WSE	Vanadium	mg/kg	9.72	1
SD-WSE	Zinc	mg/kg	49	1
SDU-03-COR-02-003-	Aluminum	mg/kg	12600	1
SDU-03-COR-02-003-	Antimony	mg/kg	0.25	1
SDU-03-COR-02-003-	Arsenic	mg/kg	2.75	1
SDU-03-COR-02-003-	Barium	mg/kg	178	1
SDU-03-COR-02-003-	Beryllium	mg/kg	0.381	1
SDU-03-COR-02-003-	Cadmium	mg/kg	0.303	1
SDU-03-COR-02-003-	Calcium	mg/kg	2790	1
SDU-03-COR-02-003-	Chromium	mg/kg	17.1	1
SDU-03-COR-02-003-	Cobalt	mg/kg	5.1	1
SDU-03-COR-02-003-	Copper	mg/kg	14.8	1
SDU-03-COR-02-003-	Iron	mg/kg	12900	1
SDU-03-COR-02-003-	Lead	mg/kg	7.49	1
SDU-03-COR-02-003-	Magnesium	mg/kg	2880	1
SDU-03-COR-02-003-	Manganese	mg/kg	274	1
SDU-03-COR-02-003-	Mercury	mg/kg	0.008	1
SDU-03-COR-02-003-	Nickel	mg/kg	14.2	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SDU-03-COR-02-003-	Potassium	mg/kg	1160	1
SDU-03-COR-02-003-	Selenium	mg/kg	0.11	1
SDU-03-COR-02-003-	Silver	mg/kg	0.043	1
SDU-03-COR-02-003-	Sodium	mg/kg	169	1
SDU-03-COR-02-003-	Thallium	mg/kg	0.117	1
SDU-03-COR-02-003-	Vanadium	mg/kg	23.6	1
SDU-03-COR-02-003-	Zinc	mg/kg	55.4	1
SDU-03-COR-03-001-	Aluminum	mg/kg	10600	1
SDU-03-COR-03-001-	Antimony	mg/kg	0.287	1
SDU-03-COR-03-001-	Arsenic	mg/kg	3.22	1
SDU-03-COR-03-001-	Barium	mg/kg	176	1
SDU-03-COR-03-001-	Beryllium	mg/kg	0.334	1
SDU-03-COR-03-001-	Cadmium	mg/kg	0.407	1
SDU-03-COR-03-001-	Calcium	mg/kg	2660	1
SDU-03-COR-03-001-	Chromium	mg/kg	18.1	1
SDU-03-COR-03-001-	Cobalt	mg/kg	5.27	1
SDU-03-COR-03-001-	Copper	mg/kg	12.8	1
SDU-03-COR-03-001-	Iron	mg/kg	13700	1
SDU-03-COR-03-001-	Lead	mg/kg	22.2	1
SDU-03-COR-03-001-	Magnesium	mg/kg	3060	1
SDU-03-COR-03-001-	Manganese	mg/kg	246	1
SDU-03-COR-03-001-	Mercury	mg/kg	0.019	1
SDU-03-COR-03-001-	Nickel	mg/kg	15.4	1
SDU-03-COR-03-001-	Potassium	mg/kg	1380	1
SDU-03-COR-03-001-	Selenium	mg/kg	0.13	1
SDU-03-COR-03-001-	Silver	mg/kg	0.067	1
SDU-03-COR-03-001-	Sodium	mg/kg	126	1
SDU-03-COR-03-001-	Thallium	mg/kg	0.126	1
SDU-03-COR-03-001-	Vanadium	mg/kg	26.6	1
SDU-03-COR-03-001-	Zinc	mg/kg	79.3	1
SDU-03-COR-03-002-	Aluminum	mg/kg	12200	1
SDU-03-COR-03-002-	Antimony	mg/kg	0.189	1
SDU-03-COR-03-002-	Arsenic	mg/kg	2.49	1
SDU-03-COR-03-002-	Barium	mg/kg	172	1
SDU-03-COR-03-002-	Beryllium	mg/kg	0.361	1
SDU-03-COR-03-002-	Cadmium	mg/kg	0.184	1
SDU-03-COR-03-002-	Calcium	mg/kg	2590	1
SDU-03-COR-03-002-	Chromium	mg/kg	19.8	1
SDU-03-COR-03-002-	Cobalt	mg/kg	5.71	1
SDU-03-COR-03-002-	Copper	mg/kg	12.6	1
SDU-03-COR-03-002-	Iron	mg/kg	15100	1
SDU-03-COR-03-002-	Lead	mg/kg	7.66	1
SDU-03-COR-03-002-	Magnesium	mg/kg	3330	1
SDU-03-COR-03-002-	Manganese	mg/kg	205	1
SDU-03-COR-03-002-	Mercury	mg/kg	0.008	1
SDU-03-COR-03-002-	Nickel	mg/kg	17.1	1
SDU-03-COR-03-002-	Potassium	mg/kg	1640	1
SDU-03-COR-03-002-	Selenium	mg/kg	0.1	1
SDU-03-COR-03-002-	Silver	mg/kg	0.044	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
SDU-03-COR-03-002-	Sodium	mg/kg	136	1
SDU-03-COR-03-002-	Thallium	mg/kg	0.116	1
SDU-03-COR-03-002-	Vanadium	mg/kg	29.4	1
SDU-03-COR-03-002-	Zinc	mg/kg	55.1	1
SDU-03-COR-03-003-	Aluminum	mg/kg	12100	1
SDU-03-COR-03-003-	Antimony	mg/kg	0.167	1
SDU-03-COR-03-003-	Arsenic	mg/kg	2.89	1
SDU-03-COR-03-003-	Barium	mg/kg	142	1
SDU-03-COR-03-003-	Beryllium	mg/kg	0.375	1
SDU-03-COR-03-003-	Cadmium	mg/kg	0.168	1
SDU-03-COR-03-003-	Calcium	mg/kg	2820	1
SDU-03-COR-03-003-	Chromium	mg/kg	20.7	1
SDU-03-COR-03-003-	Cobalt	mg/kg	6.2	1
SDU-03-COR-03-003-	Copper	mg/kg	16.1	1
SDU-03-COR-03-003-	Iron	mg/kg	15500	1
SDU-03-COR-03-003-	Lead	mg/kg	11.4	1
SDU-03-COR-03-003-	Magnesium	mg/kg	3600	1
SDU-03-COR-03-003-	Manganese	mg/kg	173	1
SDU-03-COR-03-003-	Mercury	mg/kg	0.008	1
SDU-03-COR-03-003-	Nickel	mg/kg	17.4	1
SDU-03-COR-03-003-	Potassium	mg/kg	1700	1
SDU-03-COR-03-003-	Selenium	mg/kg	0.1	1
SDU-03-COR-03-003-	Silver	mg/kg	0.065	1
SDU-03-COR-03-003-	Sodium	mg/kg	150	1
SDU-03-COR-03-003-	Thallium	mg/kg	0.118	1
SDU-03-COR-03-003-	Vanadium	mg/kg	30.3	1
SDU-03-COR-03-003-	Zinc	mg/kg	49.2	1
SDU-04-COR-01-001-	Aluminum	mg/kg	8070	1
SDU-04-COR-01-001-	Antimony	mg/kg	0.492	1
SDU-04-COR-01-001-	Arsenic	mg/kg	12.7	1
SDU-04-COR-01-001-	Barium	mg/kg	88.6	1
SDU-04-COR-01-001-	Beryllium	mg/kg	0.312	1
SDU-04-COR-01-001-	Cadmium	mg/kg	0.493	1
SDU-04-COR-01-001-	Calcium	mg/kg	16800	1
SDU-04-COR-01-001-	Chromium	mg/kg	29.6	1
SDU-04-COR-01-001-	Cobalt	mg/kg	8.55	1
SDU-04-COR-01-001-	Copper	mg/kg	22.9	1
SDU-04-COR-01-001-	Iron	mg/kg	20000	1
SDU-04-COR-01-001-	Lead	mg/kg	24.7	1
SDU-04-COR-01-001-	Magnesium	mg/kg	7870	1
SDU-04-COR-01-001-	Manganese	mg/kg	346	1
SDU-04-COR-01-001-	Mercury	mg/kg	0.021	1
SDU-04-COR-01-001-	Nickel	mg/kg	30.8	1
SDU-04-COR-01-001-	Potassium	mg/kg	955	1
SDU-04-COR-01-001-	Selenium	mg/kg	0.39	1
SDU-04-COR-01-001-	Silver	mg/kg	0.183	1
SDU-04-COR-01-001-	Sodium	mg/kg	153	1
SDU-04-COR-01-001-	Thallium	mg/kg	0.093	1
SDU-04-COR-01-001-	Vanadium	mg/kg	31.9	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
SDU-04-COR-01-001-	Zinc	mg/kg	101	1
SDU-04-COR-01-002-	Aluminum	mg/kg	9130	1
SDU-04-COR-01-002-	Antimony	mg/kg	0.605	1
SDU-04-COR-01-002-	Arsenic	mg/kg	10.3	1
SDU-04-COR-01-002-	Barium	mg/kg	75.8	1
SDU-04-COR-01-002-	Beryllium	mg/kg	0.303	1
SDU-04-COR-01-002-	Cadmium	mg/kg	0.409	1
SDU-04-COR-01-002-	Calcium	mg/kg	20800	1
SDU-04-COR-01-002-	Chromium	mg/kg	35.3	1
SDU-04-COR-01-002-	Cobalt	mg/kg	9.05	1
SDU-04-COR-01-002-	Copper	mg/kg	21.3	1
SDU-04-COR-01-002-	Iron	mg/kg	22500	1
SDU-04-COR-01-002-	Lead	mg/kg	25.4	1
SDU-04-COR-01-002-	Magnesium	mg/kg	9070	1
SDU-04-COR-01-002-	Manganese	mg/kg	360	1
SDU-04-COR-01-002-	Mercury	mg/kg	0.024	1
SDU-04-COR-01-002-	Nickel	mg/kg	30.7	1
SDU-04-COR-01-002-	Potassium	mg/kg	895	1
SDU-04-COR-01-002-	Selenium	mg/kg	0.3	1
SDU-04-COR-01-002-	Silver	mg/kg	0.113	1
SDU-04-COR-01-002-	Sodium	mg/kg	197	1
SDU-04-COR-01-002-	Thallium	mg/kg	0.082	0
SDU-04-COR-01-002-	Vanadium	mg/kg	35.7	1
SDU-04-COR-01-002-	Zinc	mg/kg	99.6	1
SDU-04-COR-02-001-	Aluminum	mg/kg	6290	1
SDU-04-COR-02-001-	Antimony	mg/kg	0.328	1
SDU-04-COR-02-001-	Arsenic	mg/kg	5.41	1
SDU-04-COR-02-001-	Barium	mg/kg	83.3	1
SDU-04-COR-02-001-	Beryllium	mg/kg	0.261	1
SDU-04-COR-02-001-	Cadmium	mg/kg	0.416	1
SDU-04-COR-02-001-	Calcium	mg/kg	9490	1
SDU-04-COR-02-001-	Chromium	mg/kg	18.6	1
SDU-04-COR-02-001-	Cobalt	mg/kg	5.52	1
SDU-04-COR-02-001-	Copper	mg/kg	16.3	1
SDU-04-COR-02-001-	Iron	mg/kg	14900	1
SDU-04-COR-02-001-	Lead	mg/kg	18.3	1
SDU-04-COR-02-001-	Magnesium	mg/kg	5310	1
SDU-04-COR-02-001-	Manganese	mg/kg	223	1
SDU-04-COR-02-001-	Mercury	mg/kg	0.021	1
SDU-04-COR-02-001-	Nickel	mg/kg	16.1	1
SDU-04-COR-02-001-	Potassium	mg/kg	998	1
SDU-04-COR-02-001-	Selenium	mg/kg	0.16	1
SDU-04-COR-02-001-	Silver	mg/kg	0.144	1
SDU-04-COR-02-001-	Sodium	mg/kg	153	1
SDU-04-COR-02-001-	Thallium	mg/kg	0.096	1
SDU-04-COR-02-001-	Vanadium	mg/kg	27.6	1
SDU-04-COR-02-001-	Zinc	mg/kg	87	1
SDU-04-COR-02-002-	Aluminum	mg/kg	6440	1
SDU-04-COR-02-002-	Antimony	mg/kg	0.349	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Sample ID	Analyte	Unit	Value	Detect
SDU-04-COR-02-002-	Arsenic	mg/kg	5.83	1
SDU-04-COR-02-002-	Barium	mg/kg	74.2	1
SDU-04-COR-02-002-	Beryllium	mg/kg	0.222	1
SDU-04-COR-02-002-	Cadmium	mg/kg	0.377	1
SDU-04-COR-02-002-	Calcium	mg/kg	9440	1
SDU-04-COR-02-002-	Chromium	mg/kg	16.7	1
SDU-04-COR-02-002-	Cobalt	mg/kg	5.97	1
SDU-04-COR-02-002-	Copper	mg/kg	17.3	1
SDU-04-COR-02-002-	Iron	mg/kg	15100	1
SDU-04-COR-02-002-	Lead	mg/kg	21	1
SDU-04-COR-02-002-	Magnesium	mg/kg	5540	1
SDU-04-COR-02-002-	Manganese	mg/kg	222	1
SDU-04-COR-02-002-	Mercury	mg/kg	0.019	1
SDU-04-COR-02-002-	Nickel	mg/kg	16.6	1
SDU-04-COR-02-002-	Potassium	mg/kg	894	1
SDU-04-COR-02-002-	Selenium	mg/kg	0.24	1
SDU-04-COR-02-002-	Silver	mg/kg	0.145	1
SDU-04-COR-02-002-	Sodium	mg/kg	127	1
SDU-04-COR-02-002-	Thallium	mg/kg	0.086	1
SDU-04-COR-02-002-	Vanadium	mg/kg	26.7	1
SDU-04-COR-02-002-	Zinc	mg/kg	79.7	1
SDU-04-COR-02-003-	Aluminum	mg/kg	7030	1
SDU-04-COR-02-003-	Antimony	mg/kg	0.34	1
SDU-04-COR-02-003-	Arsenic	mg/kg	5.45	1
SDU-04-COR-02-003-	Barium	mg/kg	66.6	1
SDU-04-COR-02-003-	Beryllium	mg/kg	0.237	1
SDU-04-COR-02-003-	Cadmium	mg/kg	0.367	1
SDU-04-COR-02-003-	Calcium	mg/kg	9980	1
SDU-04-COR-02-003-	Chromium	mg/kg	21.4	1
SDU-04-COR-02-003-	Cobalt	mg/kg	5.99	1
SDU-04-COR-02-003-	Copper	mg/kg	20.1	1
SDU-04-COR-02-003-	Iron	mg/kg	15900	1
SDU-04-COR-02-003-	Lead	mg/kg	16.4	1
SDU-04-COR-02-003-	Magnesium	mg/kg	6190	1
SDU-04-COR-02-003-	Manganese	mg/kg	246	1
SDU-04-COR-02-003-	Mercury	mg/kg	0.012	1
SDU-04-COR-02-003-	Nickel	mg/kg	19.2	1
SDU-04-COR-02-003-	Potassium	mg/kg	889	1
SDU-04-COR-02-003-	Selenium	mg/kg	0.2	1
SDU-04-COR-02-003-	Silver	mg/kg	0.123	1
SDU-04-COR-02-003-	Sodium	mg/kg	132	1
SDU-04-COR-02-003-	Thallium	mg/kg	0.092	1
SDU-04-COR-02-003-	Vanadium	mg/kg	30	1
SDU-04-COR-02-003-	Zinc	mg/kg	78.3	1
SDU-06-COR-01-001-	Aluminum	mg/kg	7760	1
SDU-06-COR-01-001-	Antimony	mg/kg	0.143	1
SDU-06-COR-01-001-	Arsenic	mg/kg	5.79	1
SDU-06-COR-01-001-	Barium	mg/kg	85.7	1
SDU-06-COR-01-001-	Beryllium	mg/kg	0.303	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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Sample ID	Analyte	Unit	Value	Detect
SDU-06-COR-01-001-	Cadmium	mg/kg	0.264	1
SDU-06-COR-01-001-	Calcium	mg/kg	12300	1
SDU-06-COR-01-001-	Chromium	mg/kg	20.6	1
SDU-06-COR-01-001-	Cobalt	mg/kg	6.83	1
SDU-06-COR-01-001-	Copper	mg/kg	16	1
SDU-06-COR-01-001-	Iron	mg/kg	14600	1
SDU-06-COR-01-001-	Lead	mg/kg	9.36	1
SDU-06-COR-01-001-	Magnesium	mg/kg	5080	1
SDU-06-COR-01-001-	Manganese	mg/kg	237	1
SDU-06-COR-01-001-	Mercury	mg/kg	0.007	1
SDU-06-COR-01-001-	Nickel	mg/kg	17	1
SDU-06-COR-01-001-	Potassium	mg/kg	1060	1
SDU-06-COR-01-001-	Selenium	mg/kg	0.1	1
SDU-06-COR-01-001-	Silver	mg/kg	0.097	1
SDU-06-COR-01-001-	Sodium	mg/kg	117	1
SDU-06-COR-01-001-	Thallium	mg/kg	0.134	1
SDU-06-COR-01-001-	Vanadium	mg/kg	31.7	1
SDU-06-COR-01-001-	Zinc	mg/kg	56.5	1
SDU-06-COR-01-002-	Aluminum	mg/kg	7140	1
SDU-06-COR-01-002-	Antimony	mg/kg	0.13	1
SDU-06-COR-01-002-	Arsenic	mg/kg	5.56	1
SDU-06-COR-01-002-	Barium	mg/kg	77.9	1
SDU-06-COR-01-002-	Beryllium	mg/kg	0.287	1
SDU-06-COR-01-002-	Cadmium	mg/kg	0.203	1
SDU-06-COR-01-002-	Calcium	mg/kg	12700	1
SDU-06-COR-01-002-	Chromium	mg/kg	19.4	1
SDU-06-COR-01-002-	Cobalt	mg/kg	6.33	1
SDU-06-COR-01-002-	Copper	mg/kg	14.7	1
SDU-06-COR-01-002-	Iron	mg/kg	14000	1
SDU-06-COR-01-002-	Lead	mg/kg	6.95	1
SDU-06-COR-01-002-	Magnesium	mg/kg	5440	1
SDU-06-COR-01-002-	Manganese	mg/kg	264	1
SDU-06-COR-01-002-	Mercury	mg/kg	0.005	1
SDU-06-COR-01-002-	Nickel	mg/kg	16	1
SDU-06-COR-01-002-	Potassium	mg/kg	1030	1
SDU-06-COR-01-002-	Selenium	mg/kg	0.09	1
SDU-06-COR-01-002-	Silver	mg/kg	0.07	1
SDU-06-COR-01-002-	Sodium	mg/kg	131	1
SDU-06-COR-01-002-	Thallium	mg/kg	0.12	1
SDU-06-COR-01-002-	Vanadium	mg/kg	31.8	1
SDU-06-COR-01-002-	Zinc	mg/kg	45.2	1
SDU-06-COR-01-003-	Aluminum	mg/kg	6560	1
SDU-06-COR-01-003-	Antimony	mg/kg	0.123	1
SDU-06-COR-01-003-	Arsenic	mg/kg	5.61	1
SDU-06-COR-01-003-	Barium	mg/kg	77.1	1
SDU-06-COR-01-003-	Beryllium	mg/kg	0.255	1
SDU-06-COR-01-003-	Cadmium	mg/kg	0.2	1
SDU-06-COR-01-003-	Calcium	mg/kg	14100	1
SDU-06-COR-01-003-	Chromium	mg/kg	18	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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Sample ID	Analyte	Unit	Value	Detect
SDU-06-COR-01-003-	Cobalt	mg/kg	6	1
SDU-06-COR-01-003-	Copper	mg/kg	13.9	1
SDU-06-COR-01-003-	Iron	mg/kg	12900	1
SDU-06-COR-01-003-	Lead	mg/kg	6.29	1
SDU-06-COR-01-003-	Magnesium	mg/kg	5080	1
SDU-06-COR-01-003-	Manganese	mg/kg	256	1
SDU-06-COR-01-003-	Mercury	mg/kg	0.005	1
SDU-06-COR-01-003-	Nickel	mg/kg	15	1
SDU-06-COR-01-003-	Potassium	mg/kg	1020	1
SDU-06-COR-01-003-	Selenium	mg/kg	0.08	1
SDU-06-COR-01-003-	Silver	mg/kg	0.08	1
SDU-06-COR-01-003-	Sodium	mg/kg	114	1
SDU-06-COR-01-003-	Thallium	mg/kg	0.112	1
SDU-06-COR-01-003-	Vanadium	mg/kg	28.4	1
SDU-06-COR-01-003-	Zinc	mg/kg	42	1
SDU-06-COR-02-001-	Aluminum	mg/kg	5750	1
SDU-06-COR-02-001-	Antimony	mg/kg	0.086	1
SDU-06-COR-02-001-	Arsenic	mg/kg	2.1	1
SDU-06-COR-02-001-	Barium	mg/kg	48.3	1
SDU-06-COR-02-001-	Beryllium	mg/kg	0.201	1
SDU-06-COR-02-001-	Cadmium	mg/kg	0.274	1
SDU-06-COR-02-001-	Calcium	mg/kg	2510	1
SDU-06-COR-02-001-	Chromium	mg/kg	15.5	1
SDU-06-COR-02-001-	Cobalt	mg/kg	3.87	1
SDU-06-COR-02-001-	Copper	mg/kg	7.51	1
SDU-06-COR-02-001-	Iron	mg/kg	11200	1
SDU-06-COR-02-001-	Lead	mg/kg	16.8	1
SDU-06-COR-02-001-	Magnesium	mg/kg	2250	1
SDU-06-COR-02-001-	Manganese	mg/kg	103	1
SDU-06-COR-02-001-	Mercury	mg/kg	0.007	1
SDU-06-COR-02-001-	Nickel	mg/kg	9.06	1
SDU-06-COR-02-001-	Potassium	mg/kg	780	1
SDU-06-COR-02-001-	Selenium	mg/kg	0.08	1
SDU-06-COR-02-001-	Silver	mg/kg	0.033	1
SDU-06-COR-02-001-	Sodium	mg/kg	86.1	1
SDU-06-COR-02-001-	Thallium	mg/kg	0.219	1
SDU-06-COR-02-001-	Vanadium	mg/kg	26.2	1
SDU-06-COR-02-001-	Zinc	mg/kg	65.6	1
SDU-06-COR-03-001-	Aluminum	mg/kg	8990	1
SDU-06-COR-03-001-	Antimony	mg/kg	0.217	1
SDU-06-COR-03-001-	Arsenic	mg/kg	8.39	1
SDU-06-COR-03-001-	Barium	mg/kg	62.5	1
SDU-06-COR-03-001-	Beryllium	mg/kg	0.262	1
SDU-06-COR-03-001-	Cadmium	mg/kg	0.476	1
SDU-06-COR-03-001-	Calcium	mg/kg	3170	1
SDU-06-COR-03-001-	Chromium	mg/kg	17	1
SDU-06-COR-03-001-	Cobalt	mg/kg	5.79	1
SDU-06-COR-03-001-	Copper	mg/kg	17.3	1
SDU-06-COR-03-001-	Iron	mg/kg	15300	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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Sample ID	Analyte	Unit	Value	Detect
SDU-06-COR-03-001-	Lead	mg/kg	15.6	1
SDU-06-COR-03-001-	Magnesium	mg/kg	4650	1
SDU-06-COR-03-001-	Manganese	mg/kg	178	1
SDU-06-COR-03-001-	Mercury	mg/kg	0.02	1
SDU-06-COR-03-001-	Nickel	mg/kg	14.7	1
SDU-06-COR-03-001-	Potassium	mg/kg	1110	1
SDU-06-COR-03-001-	Selenium	mg/kg	0.18	1
SDU-06-COR-03-001-	Silver	mg/kg	0.074	1
SDU-06-COR-03-001-	Sodium	mg/kg	126	1
SDU-06-COR-03-001-	Thallium	mg/kg	0.182	1
SDU-06-COR-03-001-	Vanadium	mg/kg	35.2	1
SDU-06-COR-03-001-	Zinc	mg/kg	84	1
SDU-06-ICS-A-2mm	Aluminum	mg/kg	6910	1
SDU-06-ICS-A-2mm	Antimony	mg/kg	0.143	1
SDU-06-ICS-A-2mm	Arsenic	mg/kg	3.79	1
SDU-06-ICS-A-2mm	Barium	mg/kg	75.5	1
SDU-06-ICS-A-2mm	Beryllium	mg/kg	0.251	1
SDU-06-ICS-A-2mm	Cadmium	mg/kg	0.429	1
SDU-06-ICS-A-2mm	Calcium	mg/kg	3760	1
SDU-06-ICS-A-2mm	Chromium	mg/kg	15.6	1
SDU-06-ICS-A-2mm	Cobalt	mg/kg	5.37	1
SDU-06-ICS-A-2mm	Copper	mg/kg	12.5	1
SDU-06-ICS-A-2mm	Iron	mg/kg	12900	1
SDU-06-ICS-A-2mm	Lead	mg/kg	17.4	1
SDU-06-ICS-A-2mm	Magnesium	mg/kg	3290	1
SDU-06-ICS-A-2mm	Manganese	mg/kg	182	1
SDU-06-ICS-A-2mm	Mercury	mg/kg	0.021	1
SDU-06-ICS-A-2mm	Nickel	mg/kg	12.8	1
SDU-06-ICS-A-2mm	Potassium	mg/kg	1240	1
SDU-06-ICS-A-2mm	Selenium	mg/kg	0.11	1
SDU-06-ICS-A-2mm	Silver	mg/kg	0.066	1
SDU-06-ICS-A-2mm	Sodium	mg/kg	106	1
SDU-06-ICS-A-2mm	Thallium	mg/kg	0.182	1
SDU-06-ICS-A-2mm	Vanadium	mg/kg	23.7	1
SDU-06-ICS-A-2mm	Zinc	mg/kg	65	1
SDU-06-ICS-B-2mm	Aluminum	mg/kg	6490	1
SDU-06-ICS-B-2mm	Antimony	mg/kg	0.156	1
SDU-06-ICS-B-2mm	Arsenic	mg/kg	3.7	1
SDU-06-ICS-B-2mm	Barium	mg/kg	71.4	1
SDU-06-ICS-B-2mm	Beryllium	mg/kg	0.253	1
SDU-06-ICS-B-2mm	Cadmium	mg/kg	0.506	1
SDU-06-ICS-B-2mm	Calcium	mg/kg	3210	1
SDU-06-ICS-B-2mm	Chromium	mg/kg	15.8	1
SDU-06-ICS-B-2mm	Cobalt	mg/kg	5.02	1
SDU-06-ICS-B-2mm	Copper	mg/kg	11.9	1
SDU-06-ICS-B-2mm	Iron	mg/kg	13100	1
SDU-06-ICS-B-2mm	Lead	mg/kg	20.3	1
SDU-06-ICS-B-2mm	Magnesium	mg/kg	3160	1
SDU-06-ICS-B-2mm	Manganese	mg/kg	162	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SDU-06-ICS-B-2mm	Mercury	mg/kg	0.019	1
SDU-06-ICS-B-2mm	Nickel	mg/kg	12.3	1
SDU-06-ICS-B-2mm	Potassium	mg/kg	1060	1
SDU-06-ICS-B-2mm	Selenium	mg/kg	0.12	1
SDU-06-ICS-B-2mm	Silver	mg/kg	0.062	1
SDU-06-ICS-B-2mm	Sodium	mg/kg	102	1
SDU-06-ICS-B-2mm	Thallium	mg/kg	0.253	1
SDU-06-ICS-B-2mm	Vanadium	mg/kg	24.7	1
SDU-06-ICS-B-2mm	Zinc	mg/kg	74.4	1
SE-4-C2	Aluminum	mg/kg	7640	1
SE-4-C2	Antimony	mg/kg	0.091	1
SE-4-C2	Arsenic	mg/kg	1.93	1
SE-4-C2	Barium	mg/kg	69.4	1
SE-4-C2	Beryllium	mg/kg	0.355	1
SE-4-C2	Cadmium	mg/kg	0.167	1
SE-4-C2	Calcium	mg/kg	4280	1
SE-4-C2	Chromium	mg/kg	21.2	1
SE-4-C2	Cobalt	mg/kg	5.05	1
SE-4-C2	Copper	mg/kg	18.4	1
SE-4-C2	Iron	mg/kg	16100	1
SE-4-C2	Lead	mg/kg	7.4	1
SE-4-C2	Magnesium	mg/kg	4620	1
SE-4-C2	Manganese	mg/kg	226	1
SE-4-C2	Mercury	mg/kg	0.016	1
SE-4-C2	Nickel	mg/kg	13.1	1
SE-4-C2	Potassium	mg/kg	916	1
SE-4-C2	Selenium	mg/kg	0.3	1
SE-4-C2	Silver	mg/kg	0.102	1
SE-4-C2	Sodium	mg/kg	144	1
SE-4-C2	Thallium	mg/kg	0.077	1
SE-4-C2	Vanadium	mg/kg	34.2	1
SE-4-C2	Zinc	mg/kg	48.1	1
SE-6B-C3	Aluminum	mg/kg	22000	1
SE-6B-C3	Antimony	mg/kg	0.831	1
SE-6B-C3	Arsenic	mg/kg	8.58	1
SE-6B-C3	Barium	mg/kg	253	1
SE-6B-C3	Beryllium	mg/kg	0.711	1
SE-6B-C3	Cadmium	mg/kg	1.64	1
SE-6B-C3	Calcium	mg/kg	6410	1
SE-6B-C3	Chromium	mg/kg	38.6	1
SE-6B-C3	Cobalt	mg/kg	13.6	1
SE-6B-C3	Copper	mg/kg	54.3	1
SE-6B-C3	Iron	mg/kg	34900	1
SE-6B-C3	Lead	mg/kg	81.6	1
SE-6B-C3	Magnesium	mg/kg	11900	1
SE-6B-C3	Manganese	mg/kg	1030	1
SE-6B-C3	Mercury	mg/kg	0.159	1
SE-6B-C3	Nickel	mg/kg	35.6	1
SE-6B-C3	Potassium	mg/kg	3140	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SE-6B-C3	Selenium	mg/kg	0.8	1
SE-6B-C3	Silver	mg/kg	0.537	1
SE-6B-C3	Sodium	mg/kg	371	1
SE-6B-C3	Thallium	mg/kg	0.409	1
SE-6B-C3	Vanadium	mg/kg	56.8	1
SE-6B-C3	Zinc	mg/kg	303	1
SE-8-C2	Aluminum	mg/kg	9150	1
SE-8-C2	Antimony	mg/kg	0.192	1
SE-8-C2	Arsenic	mg/kg	5.6	1
SE-8-C2	Barium	mg/kg	76.8	1
SE-8-C2	Beryllium	mg/kg	0.298	1
SE-8-C2	Cadmium	mg/kg	0.502	1
SE-8-C2	Calcium	mg/kg	3400	1
SE-8-C2	Chromium	mg/kg	10.9	1
SE-8-C2	Cobalt	mg/kg	4.74	1
SE-8-C2	Copper	mg/kg	12.2	1
SE-8-C2	Iron	mg/kg	14700	1
SE-8-C2	Lead	mg/kg	13.8	1
SE-8-C2	Magnesium	mg/kg	5330	1
SE-8-C2	Manganese	mg/kg	356	1
SE-8-C2	Mercury	mg/kg	0.022	1
SE-8-C2	Nickel	mg/kg	10.3	1
SE-8-C2	Potassium	mg/kg	1680	1
SE-8-C2	Selenium	mg/kg	0.2	1
SE-8-C2	Silver	mg/kg	0.082	1
SE-8-C2	Sodium	mg/kg	117	1
SE-8-C2	Thallium	mg/kg	0.203	1
SE-8-C2	Vanadium	mg/kg	19.3	1
SE-8-C2	Zinc	mg/kg	95.6	1
SE-G-1	Aluminum	mg/kg	2940	1
SE-G-1	Antimony	mg/kg	0.044	0
SE-G-1	Arsenic	mg/kg	0.51	1
SE-G-1	Barium	mg/kg	31.3	1
SE-G-1	Beryllium	mg/kg	0.119	1
SE-G-1	Cadmium	mg/kg	0.101	1
SE-G-1	Calcium	mg/kg	1530	1
SE-G-1	Chromium	mg/kg	5.63	1
SE-G-1	Cobalt	mg/kg	1.76	1
SE-G-1	Copper	mg/kg	3.33	1
SE-G-1	Iron	mg/kg	5750	1
SE-G-1	Lead	mg/kg	3.56	1
SE-G-1	Magnesium	mg/kg	2060	1
SE-G-1	Manganese	mg/kg	127	1
SE-G-1	Mercury	mg/kg	0.002	0
SE-G-1	Nickel	mg/kg	5.37	1
SE-G-1	Potassium	mg/kg	554	1
SE-G-1	Selenium	mg/kg	0.2	0
SE-G-1	Silver	mg/kg	0.053	1
SE-G-1	Sodium	mg/kg	59.9	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SE-G-1	Thallium	mg/kg	0.085	1
SE-G-1	Vanadium	mg/kg	8.26	1
SE-G-1	Zinc	mg/kg	23.5	1
SE-G-2	Aluminum	mg/kg	3270	1
SE-G-2	Antimony	mg/kg	0.031	0
SE-G-2	Arsenic	mg/kg	0.66	1
SE-G-2	Barium	mg/kg	24.9	1
SE-G-2	Beryllium	mg/kg	0.142	1
SE-G-2	Cadmium	mg/kg	0.107	1
SE-G-2	Calcium	mg/kg	1650	1
SE-G-2	Chromium	mg/kg	4.85	1
SE-G-2	Cobalt	mg/kg	1.77	1
SE-G-2	Copper	mg/kg	4.55	1
SE-G-2	Iron	mg/kg	7360	1
SE-G-2	Lead	mg/kg	4.66	1
SE-G-2	Magnesium	mg/kg	2120	1
SE-G-2	Manganese	mg/kg	145	1
SE-G-2	Mercury	mg/kg	0.002	0
SE-G-2	Nickel	mg/kg	4.65	1
SE-G-2	Potassium	mg/kg	488	1
SE-G-2	Selenium	mg/kg	0.2	0
SE-G-2	Silver	mg/kg	0.053	1
SE-G-2	Sodium	mg/kg	77.4	1
SE-G-2	Thallium	mg/kg	0.055	1
SE-G-2	Vanadium	mg/kg	10.6	1
SE-G-2	Zinc	mg/kg	29.7	1
SE-G-3	Aluminum	mg/kg	2960	1
SE-G-3	Antimony	mg/kg	0.012	0
SE-G-3	Arsenic	mg/kg	0.68	1
SE-G-3	Barium	mg/kg	25.1	1
SE-G-3	Beryllium	mg/kg	0.111	1
SE-G-3	Cadmium	mg/kg	0.102	1
SE-G-3	Calcium	mg/kg	1650	1
SE-G-3	Chromium	mg/kg	17	1
SE-G-3	Cobalt	mg/kg	2.46	1
SE-G-3	Copper	mg/kg	3.93	1
SE-G-3	Iron	mg/kg	6310	1
SE-G-3	Lead	mg/kg	4.67	1
SE-G-3	Magnesium	mg/kg	2070	1
SE-G-3	Manganese	mg/kg	109	1
SE-G-3	Mercury	mg/kg	0.002	0
SE-G-3	Nickel	mg/kg	19.6	1
SE-G-3	Potassium	mg/kg	573	1
SE-G-3	Selenium	mg/kg	0.2	0
SE-G-3	Silver	mg/kg	0.034	1
SE-G-3	Sodium	mg/kg	53.8	1
SE-G-3	Thallium	mg/kg	0.037	0
SE-G-3	Vanadium	mg/kg	9.74	1
SE-G-3	Zinc	mg/kg	30.6	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SE-G-4	Aluminum	mg/kg	2990	1
SE-G-4	Antimony	mg/kg	0.008	0
SE-G-4	Arsenic	mg/kg	0.52	1
SE-G-4	Barium	mg/kg	24.1	1
SE-G-4	Beryllium	mg/kg	0.119	1
SE-G-4	Cadmium	mg/kg	0.093	1
SE-G-4	Calcium	mg/kg	1540	1
SE-G-4	Chromium	mg/kg	5.46	1
SE-G-4	Cobalt	mg/kg	1.59	1
SE-G-4	Copper	mg/kg	4.04	1
SE-G-4	Iron	mg/kg	6340	1
SE-G-4	Lead	mg/kg	4.77	1
SE-G-4	Magnesium	mg/kg	1880	1
SE-G-4	Manganese	mg/kg	92.5	1
SE-G-4	Mercury	mg/kg	0.002	0
SE-G-4	Nickel	mg/kg	4.94	1
SE-G-4	Potassium	mg/kg	552	1
SE-G-4	Selenium	mg/kg	0.2	0
SE-G-4	Silver	mg/kg	0.039	1
SE-G-4	Sodium	mg/kg	57.2	1
SE-G-4	Thallium	mg/kg	0.04	0
SE-G-4	Vanadium	mg/kg	8.35	1
SE-G-4	Zinc	mg/kg	27.2	1
SE-LAL-1	Aluminum	mg/kg	11700	1
SE-LAL-1	Antimony	mg/kg	0.041	0
SE-LAL-1	Arsenic	mg/kg	3.8	1
SE-LAL-1	Barium	mg/kg	124	1
SE-LAL-1	Beryllium	mg/kg	0.769	1
SE-LAL-1	Cadmium	mg/kg	0.33	1
SE-LAL-1	Calcium	mg/kg	6360	1
SE-LAL-1	Chromium	mg/kg	22.8	1
SE-LAL-1	Cobalt	mg/kg	11	1
SE-LAL-1	Copper	mg/kg	22.9	1
SE-LAL-1	Iron	mg/kg	23000	1
SE-LAL-1	Lead	mg/kg	13.5	1
SE-LAL-1	Magnesium	mg/kg	5980	1
SE-LAL-1	Manganese	mg/kg	244	1
SE-LAL-1	Mercury	mg/kg	0.015	1
SE-LAL-1	Nickel	mg/kg	23.6	1
SE-LAL-1	Potassium	mg/kg	2030	1
SE-LAL-1	Selenium	mg/kg	0.5	1
SE-LAL-1	Silver	mg/kg	0.313	1
SE-LAL-1	Sodium	mg/kg	249	1
SE-LAL-1	Thallium	mg/kg	0.196	1
SE-LAL-1	Vanadium	mg/kg	34.4	1
SE-LAL-1	Zinc	mg/kg	67.7	1
SE-LAL-2	Aluminum	mg/kg	7360	1
SE-LAL-2	Antimony	mg/kg	0.178	1
SE-LAL-2	Arsenic	mg/kg	0.65	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SE-LAL-2	Barium	mg/kg	108	1
SE-LAL-2	Beryllium	mg/kg	0.742	1
SE-LAL-2	Cadmium	mg/kg	0.39	1
SE-LAL-2	Calcium	mg/kg	8190	1
SE-LAL-2	Chromium	mg/kg	12.6	1
SE-LAL-2	Cobalt	mg/kg	4.46	1
SE-LAL-2	Copper	mg/kg	11.3	1
SE-LAL-2	Iron	mg/kg	20000	1
SE-LAL-2	Lead	mg/kg	15.5	1
SE-LAL-2	Magnesium	mg/kg	4670	1
SE-LAL-2	Manganese	mg/kg	520	1
SE-LAL-2	Mercury	mg/kg	0.029	1
SE-LAL-2	Nickel	mg/kg	8.8	1
SE-LAL-2	Potassium	mg/kg	1220	1
SE-LAL-2	Selenium	mg/kg	0.4	1
SE-LAL-2	Silver	mg/kg	0.347	1
SE-LAL-2	Sodium	mg/kg	216	1
SE-LAL-2	Thallium	mg/kg	0.098	0
SE-LAL-2	Vanadium	mg/kg	19.8	1
SE-LAL-2	Zinc	mg/kg	46.7	1
SE-LAL-3	Aluminum	mg/kg	3185	1
SE-LAL-3	Antimony	mg/kg	0.007	0
SE-LAL-3	Arsenic	mg/kg	0.89	1
SE-LAL-3	Barium	mg/kg	106.6	1
SE-LAL-3	Beryllium	mg/kg	0.233	1
SE-LAL-3	Cadmium	mg/kg	0.0685	1
SE-LAL-3	Calcium	mg/kg	1505	1
SE-LAL-3	Chromium	mg/kg	6.675	1
SE-LAL-3	Cobalt	mg/kg	4.24	1
SE-LAL-3	Copper	mg/kg	3.53	1
SE-LAL-3	Iron	mg/kg	10640	1
SE-LAL-3	Lead	mg/kg	7.7	1
SE-LAL-3	Magnesium	mg/kg	2270	1
SE-LAL-3	Manganese	mg/kg	719	1
SE-LAL-3	Mercury	mg/kg	0.002	0
SE-LAL-3	Nickel	mg/kg	6.925	1
SE-LAL-3	Potassium	mg/kg	469.5	1
SE-LAL-3	Selenium	mg/kg	0.2	0
SE-LAL-3	Silver	mg/kg	0.053	1
SE-LAL-3	Sodium	mg/kg	43.6	1
SE-LAL-3	Thallium	mg/kg	0.028	0
SE-LAL-3	Vanadium	mg/kg	10.235	1
SE-LAL-3	Zinc	mg/kg	25.05	1
SE-LAL-4	Aluminum	mg/kg	2850	1
SE-LAL-4	Antimony	mg/kg	0.064	1
SE-LAL-4	Arsenic	mg/kg	0.63	1
SE-LAL-4	Barium	mg/kg	56.2	1
SE-LAL-4	Beryllium	mg/kg	0.144	1
SE-LAL-4	Cadmium	mg/kg	0.184	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SE-LAL-4	Calcium	mg/kg	1980	1
SE-LAL-4	Chromium	mg/kg	15.5	1
SE-LAL-4	Cobalt	mg/kg	2.57	1
SE-LAL-4	Copper	mg/kg	3.59	1
SE-LAL-4	Iron	mg/kg	6920	1
SE-LAL-4	Lead	mg/kg	11.4	1
SE-LAL-4	Magnesium	mg/kg	1970	1
SE-LAL-4	Manganese	mg/kg	82.8	1
SE-LAL-4	Mercury	mg/kg	0.004	1
SE-LAL-4	Nickel	mg/kg	11.8	1
SE-LAL-4	Potassium	mg/kg	1170	1
SE-LAL-4	Selenium	mg/kg	0.1	0
SE-LAL-4	Silver	mg/kg	0.044	1
SE-LAL-4	Sodium	mg/kg	47.9	1
SE-LAL-4	Thallium	mg/kg	0.062	1
SE-LAL-4	Vanadium	mg/kg	8.98	1
SE-LAL-4	Zinc	mg/kg	33.3	1
SE-LAL-5	Aluminum	mg/kg	12100	1
SE-LAL-5	Antimony	mg/kg	0.113	1
SE-LAL-5	Arsenic	mg/kg	5.95	1
SE-LAL-5	Barium	mg/kg	138	1
SE-LAL-5	Beryllium	mg/kg	0.479	1
SE-LAL-5	Cadmium	mg/kg	0.399	1
SE-LAL-5	Calcium	mg/kg	3590	1
SE-LAL-5	Chromium	mg/kg	33.7	1
SE-LAL-5	Cobalt	mg/kg	13.2	1
SE-LAL-5	Copper	mg/kg	23.6	1
SE-LAL-5	Iron	mg/kg	18800	1
SE-LAL-5	Lead	mg/kg	20.8	1
SE-LAL-5	Magnesium	mg/kg	6660	1
SE-LAL-5	Manganese	mg/kg	236	1
SE-LAL-5	Mercury	mg/kg	0.018	1
SE-LAL-5	Nickel	mg/kg	38.5	1
SE-LAL-5	Potassium	mg/kg	2980	1
SE-LAL-5	Selenium	mg/kg	0.4	1
SE-LAL-5	Silver	mg/kg	0.141	1
SE-LAL-5	Sodium	mg/kg	229	1
SE-LAL-5	Thallium	mg/kg	0.271	1
SE-LAL-5	Vanadium	mg/kg	27.3	1
SE-LAL-5	Zinc	mg/kg	63.7	1
SE-LAL-6	Aluminum	mg/kg	5000	1
SE-LAL-6	Antimony	mg/kg	0.1	1
SE-LAL-6	Arsenic	mg/kg	0.81	1
SE-LAL-6	Barium	mg/kg	51.9	1
SE-LAL-6	Beryllium	mg/kg	0.184	1
SE-LAL-6	Cadmium	mg/kg	0.219	1
SE-LAL-6	Calcium	mg/kg	2480	1
SE-LAL-6	Chromium	mg/kg	14	1
SE-LAL-6	Cobalt	mg/kg	3.52	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SE-LAL-6	Copper	mg/kg	5.58	1
SE-LAL-6	Iron	mg/kg	9010	1
SE-LAL-6	Lead	mg/kg	12.8	1
SE-LAL-6	Magnesium	mg/kg	3020	1
SE-LAL-6	Manganese	mg/kg	111	1
SE-LAL-6	Mercury	mg/kg	0.007	1
SE-LAL-6	Nickel	mg/kg	13.5	1
SE-LAL-6	Potassium	mg/kg	1070	1
SE-LAL-6	Selenium	mg/kg	0.1	0
SE-LAL-6	Silver	mg/kg	0.07	1
SE-LAL-6	Sodium	mg/kg	89	1
SE-LAL-6	Thallium	mg/kg	0.09	1
SE-LAL-6	Vanadium	mg/kg	12.3	1
SE-LAL-6	Zinc	mg/kg	39.2	1
SE-REF-10b	Aluminum	mg/kg	9600	1
SE-REF-10b	Antimony	mg/kg	0.163	1
SE-REF-10b	Arsenic	mg/kg	5.97	1
SE-REF-10b	Barium	mg/kg	79.8	1
SE-REF-10b	Beryllium	mg/kg	0.282	1
SE-REF-10b	Cadmium	mg/kg	0.257	1
SE-REF-10b	Calcium	mg/kg	6530	1
SE-REF-10b	Chromium	mg/kg	10.4	1
SE-REF-10b	Cobalt	mg/kg	5.11	1
SE-REF-10b	Copper	mg/kg	10.4	1
SE-REF-10b	Iron	mg/kg	17100	1
SE-REF-10b	Lead	mg/kg	11	1
SE-REF-10b	Magnesium	mg/kg	7150	1
SE-REF-10b	Manganese	mg/kg	333	1
SE-REF-10b	Mercury	mg/kg	0.011	1
SE-REF-10b	Nickel	mg/kg	10	1
SE-REF-10b	Potassium	mg/kg	1740	1
SE-REF-10b	Selenium	mg/kg	0.2	1
SE-REF-10b	Silver	mg/kg	0.078	1
SE-REF-10b	Sodium	mg/kg	139	1
SE-REF-10b	Thallium	mg/kg	0.18	1
SE-REF-10b	Vanadium	mg/kg	23.7	1
SE-REF-10b	Zinc	mg/kg	72.8	1
SE-REF-5	Aluminum	mg/kg	8230	1
SE-REF-5	Antimony	mg/kg	0.143	1
SE-REF-5	Arsenic	mg/kg	2.42	1
SE-REF-5	Barium	mg/kg	74.6	1
SE-REF-5	Beryllium	mg/kg	0.206	1
SE-REF-5	Cadmium	mg/kg	0.326	1
SE-REF-5	Calcium	mg/kg	2580	1
SE-REF-5	Chromium	mg/kg	12.6	1
SE-REF-5	Cobalt	mg/kg	4.48	1
SE-REF-5	Copper	mg/kg	12	1
SE-REF-5	Iron	mg/kg	16300	1
SE-REF-5	Lead	mg/kg	12.5	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SE-REF-5	Magnesium	mg/kg	4740	1
SE-REF-5	Manganese	mg/kg	300	1
SE-REF-5	Mercury	mg/kg	0.012	1
SE-REF-5	Nickel	mg/kg	12.3	1
SE-REF-5	Potassium	mg/kg	954	1
SE-REF-5	Selenium	mg/kg	0.2	1
SE-REF-5	Silver	mg/kg	0.047	1
SE-REF-5	Sodium	mg/kg	112	1
SE-REF-5	Thallium	mg/kg	0.133	1
SE-REF-5	Vanadium	mg/kg	25.4	1
SE-REF-5	Zinc	mg/kg	71	1
SE-REF-9	Aluminum	mg/kg	4670	1
SE-REF-9	Antimony	mg/kg	0.037	0
SE-REF-9	Arsenic	mg/kg	0.91	1
SE-REF-9	Barium	mg/kg	37.5	1
SE-REF-9	Beryllium	mg/kg	0.229	1
SE-REF-9	Cadmium	mg/kg	0.07	1
SE-REF-9	Calcium	mg/kg	1840	1
SE-REF-9	Chromium	mg/kg	2.28	1
SE-REF-9	Cobalt	mg/kg	2.74	1
SE-REF-9	Copper	mg/kg	3.88	1
SE-REF-9	Iron	mg/kg	10100	1
SE-REF-9	Lead	mg/kg	2.9	1
SE-REF-9	Magnesium	mg/kg	1940	1
SE-REF-9	Manganese	mg/kg	148	1
SE-REF-9	Mercury	mg/kg	0.002	0
SE-REF-9	Nickel	mg/kg	2.38	1
SE-REF-9	Potassium	mg/kg	1310	1
SE-REF-9	Selenium	mg/kg	0.2	0
SE-REF-9	Silver	mg/kg	0.042	1
SE-REF-9	Sodium	mg/kg	46.6	0
SE-REF-9	Thallium	mg/kg	0.161	1
SE-REF-9	Vanadium	mg/kg	15.8	1
SE-REF-9	Zinc	mg/kg	32.1	1
SE-TRIB-1	Aluminum	mg/kg	1750	1
SE-TRIB-1	Antimony	mg/kg	0.006	0
SE-TRIB-1	Arsenic	mg/kg	0.2	1
SE-TRIB-1	Barium	mg/kg	12.7	1
SE-TRIB-1	Beryllium	mg/kg	0.0515	1
SE-TRIB-1	Cadmium	mg/kg	0.015	0
SE-TRIB-1	Calcium	mg/kg	667	1
SE-TRIB-1	Chromium	mg/kg	2.245	1
SE-TRIB-1	Cobalt	mg/kg	0.906	1
SE-TRIB-1	Copper	mg/kg	0.8	1
SE-TRIB-1	Iron	mg/kg	2735	1
SE-TRIB-1	Lead	mg/kg	1.1	0
SE-TRIB-1	Magnesium	mg/kg	800	1
SE-TRIB-1	Manganese	mg/kg	42.6	1
SE-TRIB-1	Mercury	mg/kg	0.002	0

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
SE-TRIB-1	Nickel	mg/kg	1.98	1
SE-TRIB-1	Potassium	mg/kg	312	1
SE-TRIB-1	Selenium	mg/kg	0.2	0
SE-TRIB-1	Silver	mg/kg	0.018	1
SE-TRIB-1	Sodium	mg/kg	26.25	1
SE-TRIB-1	Thallium	mg/kg	0.0255	1
SE-TRIB-1	Vanadium	mg/kg	3.75	1
SE-TRIB-1	Zinc	mg/kg	7.55	1
SE-TRIB-2	Aluminum	mg/kg	2080	1
SE-TRIB-2	Antimony	mg/kg	0.006	0
SE-TRIB-2	Arsenic	mg/kg	0.35	1
SE-TRIB-2	Barium	mg/kg	18.6	1
SE-TRIB-2	Beryllium	mg/kg	0.107	1
SE-TRIB-2	Cadmium	mg/kg	0.025	1
SE-TRIB-2	Calcium	mg/kg	1300	1
SE-TRIB-2	Chromium	mg/kg	2.8	1
SE-TRIB-2	Cobalt	mg/kg	1.34	1
SE-TRIB-2	Copper	mg/kg	2.9	1
SE-TRIB-2	Iron	mg/kg	4030	1
SE-TRIB-2	Lead	mg/kg	1.2	1
SE-TRIB-2	Magnesium	mg/kg	1280	1
SE-TRIB-2	Manganese	mg/kg	82.1	1
SE-TRIB-2	Mercury	mg/kg	0.002	0
SE-TRIB-2	Nickel	mg/kg	2.13	1
SE-TRIB-2	Potassium	mg/kg	413	1
SE-TRIB-2	Selenium	mg/kg	0.1	0
SE-TRIB-2	Silver	mg/kg	0.013	1
SE-TRIB-2	Sodium	mg/kg	48.2	1
SE-TRIB-2	Thallium	mg/kg	0.035	1
SE-TRIB-2	Vanadium	mg/kg	6.7	1
SE-TRIB-2	Zinc	mg/kg	10.1	1
SE-TRIB-3	Aluminum	mg/kg	6570	1
SE-TRIB-3	Antimony	mg/kg	0.38	1
SE-TRIB-3	Arsenic	mg/kg	2.06	1
SE-TRIB-3	Barium	mg/kg	123	1
SE-TRIB-3	Beryllium	mg/kg	0.183	1
SE-TRIB-3	Cadmium	mg/kg	0.388	1
SE-TRIB-3	Calcium	mg/kg	20700	1
SE-TRIB-3	Chromium	mg/kg	21.2	1
SE-TRIB-3	Cobalt	mg/kg	5.29	1
SE-TRIB-3	Copper	mg/kg	9.8	1
SE-TRIB-3	Iron	mg/kg	14300	1
SE-TRIB-3	Lead	mg/kg	5.7	1
SE-TRIB-3	Magnesium	mg/kg	4620	1
SE-TRIB-3	Manganese	mg/kg	194	1
SE-TRIB-3	Mercury	mg/kg	0.007	1
SE-TRIB-3	Nickel	mg/kg	17.4	1
SE-TRIB-3	Potassium	mg/kg	641	1
SE-TRIB-3	Selenium	mg/kg	0.4	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
SE-TRIB-3	Silver	mg/kg	0.348	1
SE-TRIB-3	Sodium	mg/kg	55.2	1
SE-TRIB-3	Thallium	mg/kg	0.053	1
SE-TRIB-3	Vanadium	mg/kg	26.7	1
SE-TRIB-3	Zinc	mg/kg	47.8	1
SE-TRIB-4	Aluminum	mg/kg	8920	1
SE-TRIB-4	Antimony	mg/kg	0.164	1
SE-TRIB-4	Arsenic	mg/kg	3.71	1
SE-TRIB-4	Barium	mg/kg	69.2	1
SE-TRIB-4	Beryllium	mg/kg	0.164	1
SE-TRIB-4	Cadmium	mg/kg	0.161	1
SE-TRIB-4	Calcium	mg/kg	11600	1
SE-TRIB-4	Chromium	mg/kg	22.3	1
SE-TRIB-4	Cobalt	mg/kg	5.44	1
SE-TRIB-4	Copper	mg/kg	11	1
SE-TRIB-4	Iron	mg/kg	18300	1
SE-TRIB-4	Lead	mg/kg	7.9	0
SE-TRIB-4	Magnesium	mg/kg	6460	1
SE-TRIB-4	Manganese	mg/kg	377	1
SE-TRIB-4	Mercury	mg/kg	0.003	1
SE-TRIB-4	Nickel	mg/kg	12.2	1
SE-TRIB-4	Potassium	mg/kg	773	1
SE-TRIB-4	Selenium	mg/kg	0.2	0
SE-TRIB-4	Silver	mg/kg	0.048	1
SE-TRIB-4	Sodium	mg/kg	94.4	1
SE-TRIB-4	Thallium	mg/kg	0.059	1
SE-TRIB-4	Vanadium	mg/kg	36.4	1
SE-TRIB-4	Zinc	mg/kg	47.3	1
SE-TRIB-5	Aluminum	mg/kg	9380	1
SE-TRIB-5	Antimony	mg/kg	0.428	1
SE-TRIB-5	Arsenic	mg/kg	6.51	1
SE-TRIB-5	Barium	mg/kg	95.9	1
SE-TRIB-5	Beryllium	mg/kg	0.23	1
SE-TRIB-5	Cadmium	mg/kg	0.304	1
SE-TRIB-5	Calcium	mg/kg	44900	1
SE-TRIB-5	Chromium	mg/kg	29.3	1
SE-TRIB-5	Cobalt	mg/kg	6.54	1
SE-TRIB-5	Copper	mg/kg	19.5	1
SE-TRIB-5	Iron	mg/kg	24800	1
SE-TRIB-5	Lead	mg/kg	9.8	1
SE-TRIB-5	Magnesium	mg/kg	6670	1
SE-TRIB-5	Manganese	mg/kg	282	1
SE-TRIB-5	Mercury	mg/kg	0.006	1
SE-TRIB-5	Nickel	mg/kg	17.2	1
SE-TRIB-5	Potassium	mg/kg	679	1
SE-TRIB-5	Selenium	mg/kg	0.3	1
SE-TRIB-5	Silver	mg/kg	0.065	1
SE-TRIB-5	Sodium	mg/kg	107	1
SE-TRIB-5	Thallium	mg/kg	0.042	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
SE-TRIB-5	Vanadium	mg/kg	43.6	1
SE-TRIB-5	Zinc	mg/kg	61.9	1
TP-19 (0.5-1.0)	Aluminum	mg/kg	46000	1
TP-19 (0.5-1.0)	Arsenic	mg/kg	45	1
TP-19 (0.5-1.0)	Barium	mg/kg	660	1
TP-19 (0.5-1.0)	Calcium	mg/kg	110000	1
TP-19 (0.5-1.0)	Chromium	mg/kg	52	1
TP-19 (0.5-1.0)	Cobalt	mg/kg	52	1
TP-19 (0.5-1.0)	Copper	mg/kg	1900	1
TP-19 (0.5-1.0)	Iron	mg/kg	110000	1
TP-19 (0.5-1.0)	Lead	mg/kg	56	1
TP-19 (0.5-1.0)	Magnesium	mg/kg	26000	1
TP-19 (0.5-1.0)	Manganese	mg/kg	640	1
TP-19 (0.5-1.0)	Mercury	mg/kg	0.049	0
TP-19 (0.5-1.0)	Nickel	mg/kg	12	1
TP-19 (0.5-1.0)	Potassium	mg/kg	21000	1
TP-19 (0.5-1.0)	Sodium	mg/kg	12000	1
TP-19 (0.5-1.0)	Vanadium	mg/kg	170	1
TP-19 (0.5-1.0)	Zinc	mg/kg	240	1
TP-6 (2.0-2.5)	Aluminum	mg/kg	5400	1
TP-6 (2.0-2.5)	Arsenic	mg/kg	11	1
TP-6 (2.0-2.5)	Barium	mg/kg	54	1
TP-6 (2.0-2.5)	Calcium	mg/kg	2900	1
TP-6 (2.0-2.5)	Chromium	mg/kg	43	1
TP-6 (2.0-2.5)	Cobalt	mg/kg	9	1
TP-6 (2.0-2.5)	Copper	mg/kg	53	1
TP-6 (2.0-2.5)	Iron	mg/kg	50000	1
TP-6 (2.0-2.5)	Lead	mg/kg	10	1
TP-6 (2.0-2.5)	Magnesium	mg/kg	2900	1
TP-6 (2.0-2.5)	Manganese	mg/kg	290	1
TP-6 (2.0-2.5)	Mercury	mg/kg	0.05	0
TP-6 (2.0-2.5)	Nickel	mg/kg	17	1
TP-6 (2.0-2.5)	Potassium	mg/kg	570	1
TP-6 (2.0-2.5)	Sodium	mg/kg	84	1
TP-6 (2.0-2.5)	Vanadium	mg/kg	110	1
TP-6 (2.0-2.5)	Zinc	mg/kg	44	1
TS001	Aluminum	mg/kg	13600	1
TS001	Antimony	mg/kg	1.1	1
TS001	Arsenic	mg/kg	6.2	1
TS001	Barium	mg/kg	172	1
TS001	Beryllium	mg/kg	0.67	1
TS001	Cadmium	mg/kg	0.52	1
TS001	Calcium	mg/kg	5080	1
TS001	Chromium	mg/kg	24.8	1
TS001	Cobalt	mg/kg	7.8	1
TS001	Copper	mg/kg	19	1
TS001	Iron	mg/kg	18700	1
TS001	Lead	mg/kg	37.7	1
TS001	Magnesium	mg/kg	5060	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS001	Manganese	mg/kg	588	1
TS001	Mercury	mg/kg	0.06	0
TS001	Nickel	mg/kg	20.1	1
TS001	Potassium	mg/kg	3100	1
TS001	Selenium	mg/kg	0.89	1
TS001	Silver	mg/kg	0.67	1
TS001	Sodium	mg/kg	258	1
TS001	Thallium	mg/kg	0.92	0
TS001	Vanadium	mg/kg	31	1
TS001	Zinc	mg/kg	85.8	1
TS002	Aluminum	mg/kg	12900	1
TS002	Antimony	mg/kg	0.89	1
TS002	Arsenic	mg/kg	6.6	1
TS002	Barium	mg/kg	155	1
TS002	Beryllium	mg/kg	0.69	1
TS002	Cadmium	mg/kg	0.3	1
TS002	Calcium	mg/kg	9080	1
TS002	Chromium	mg/kg	32	1
TS002	Cobalt	mg/kg	9.4	1
TS002	Copper	mg/kg	23.9	1
TS002	Iron	mg/kg	21800	1
TS002	Lead	mg/kg	27.7	1
TS002	Magnesium	mg/kg	7920	1
TS002	Manganese	mg/kg	546	1
TS002	Mercury	mg/kg	0.05	0
TS002	Nickel	mg/kg	27.5	1
TS002	Potassium	mg/kg	3100	1
TS002	Selenium	mg/kg	1.1	1
TS002	Silver	mg/kg	0.75	1
TS002	Sodium	mg/kg	344	1
TS002	Thallium	mg/kg	0.9	0
TS002	Vanadium	mg/kg	41.4	1
TS002	Zinc	mg/kg	84.5	1
TS003	Aluminum	mg/kg	14400	1
TS003	Antimony	mg/kg	0.76	0
TS003	Arsenic	mg/kg	6.2	0
TS003	Barium	mg/kg	159	1
TS003	Beryllium	mg/kg	0.72	1
TS003	Cadmium	mg/kg	0.08	0
TS003	Calcium	mg/kg	7180	1
TS003	Chromium	mg/kg	29.4	1
TS003	Cobalt	mg/kg	9	1
TS003	Copper	mg/kg	25.2	1
TS003	Iron	mg/kg	21700	1
TS003	Lead	mg/kg	14.8	1
TS003	Magnesium	mg/kg	6720	1
TS003	Manganese	mg/kg	612	1
TS003	Mercury	mg/kg	0.06	0
TS003	Nickel	mg/kg	25.3	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS003	Potassium	mg/kg	3530	1
TS003	Selenium	mg/kg	1.1	1
TS003	Silver	mg/kg	0.66	1
TS003	Sodium	mg/kg	326	1
TS003	Thallium	mg/kg	0.99	0
TS003	Vanadium	mg/kg	37.7	1
TS003	Zinc	mg/kg	85.8	1
TS004	Aluminum	mg/kg	8360	1
TS004	Arsenic	mg/kg	4.6	1
TS004	Barium	mg/kg	130	1
TS004	Beryllium	mg/kg	0.45	1
TS004	Cadmium	mg/kg	0.29	0
TS004	Calcium	mg/kg	13400	1
TS004	Chromium	mg/kg	19.8	1
TS004	Cobalt	mg/kg	6.1	1
TS004	Copper	mg/kg	12.8	1
TS004	Iron	mg/kg	17000	1
TS004	Lead	mg/kg	8.6	1
TS004	Magnesium	mg/kg	3520	1
TS004	Manganese	mg/kg	939	1
TS004	Nickel	mg/kg	15.7	1
TS004	Potassium	mg/kg	1560	1
TS004	Selenium	mg/kg	3.7	1
TS004	Silver	mg/kg	0.77	0
TS004	Sodium	mg/kg	685	1
TS004	Vanadium	mg/kg	19.4	1
TS004	Zinc	mg/kg	49.2	1
TS005	Aluminum	mg/kg	3170	1
TS005	Antimony	mg/kg	0.94	0
TS005	Arsenic	mg/kg	3.7	0
TS005	Barium	mg/kg	49.3	1
TS005	Beryllium	mg/kg	0.2	1
TS005	Cadmium	mg/kg	0.09	0
TS005	Calcium	mg/kg	1630	1
TS005	Chromium	mg/kg	8.9	1
TS005	Cobalt	mg/kg	2.4	1
TS005	Copper	mg/kg	4.7	1
TS005	Iron	mg/kg	6600	1
TS005	Lead	mg/kg	2.9	1
TS005	Magnesium	mg/kg	1580	1
TS005	Manganese	mg/kg	172	1
TS005	Mercury	mg/kg	0.08	0
TS005	Nickel	mg/kg	6.4	1
TS005	Potassium	mg/kg	629	1
TS005	Selenium	mg/kg	1.1	0
TS005	Silver	mg/kg	0.25	0
TS005	Sodium	mg/kg	265	0
TS005	Vanadium	mg/kg	8.5	1
TS005	Zinc	mg/kg	19.5	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS006	Aluminum	mg/kg	7830	1
TS006	Antimony	mg/kg	1	0
TS006	Arsenic	mg/kg	4.7	1
TS006	Barium	mg/kg	140	1
TS006	Beryllium	mg/kg	0.4	1
TS006	Cadmium	mg/kg	0.1	0
TS006	Calcium	mg/kg	15800	1
TS006	Chromium	mg/kg	18.3	1
TS006	Cobalt	mg/kg	5.3	1
TS006	Copper	mg/kg	9.9	1
TS006	Iron	mg/kg	12800	1
TS006	Lead	mg/kg	8.1	1
TS006	Magnesium	mg/kg	3590	1
TS006	Manganese	mg/kg	907	1
TS006	Mercury	mg/kg	0.08	0
TS006	Nickel	mg/kg	14.4	1
TS006	Potassium	mg/kg	1590	1
TS006	Selenium	mg/kg	2.2	1
TS006	Silver	mg/kg	0.61	1
TS006	Sodium	mg/kg	394	1
TS006	Vanadium	mg/kg	19.9	1
TS006	Zinc	mg/kg	49.1	1
TS007	Aluminum	mg/kg	12500	1
TS007	Antimony	mg/kg	0.68	0
TS007	Arsenic	mg/kg	5.7	0
TS007	Barium	mg/kg	151	1
TS007	Beryllium	mg/kg	0.55	1
TS007	Cadmium	mg/kg	0.38	1
TS007	Calcium	mg/kg	31800	1
TS007	Chromium	mg/kg	24.5	1
TS007	Cobalt	mg/kg	7.6	1
TS007	Copper	mg/kg	21.6	1
TS007	Iron	mg/kg	17200	1
TS007	Lead	mg/kg	26.6	1
TS007	Magnesium	mg/kg	5030	1
TS007	Manganese	mg/kg	453	1
TS007	Mercury	mg/kg	0.06	0
TS007	Nickel	mg/kg	21.3	1
TS007	Potassium	mg/kg	2810	1
TS007	Selenium	mg/kg	0.82	1
TS007	Silver	mg/kg	0.48	1
TS007	Sodium	mg/kg	309	1
TS007	Thallium	mg/kg	0.88	0
TS007	Vanadium	mg/kg	23.8	1
TS007	Zinc	mg/kg	73.5	1
TS009	Aluminum	mg/kg	14000	1
TS009	Antimony	mg/kg	0.8	1
TS009	Arsenic	mg/kg	6.2	1
TS009	Barium	mg/kg	201	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS009	Beryllium	mg/kg	0.64	1
TS009	Cadmium	mg/kg	0.07	0
TS009	Calcium	mg/kg	31200	1
TS009	Chromium	mg/kg	29.9	1
TS009	Cobalt	mg/kg	8.5	1
TS009	Copper	mg/kg	23.7	1
TS009	Iron	mg/kg	19900	1
TS009	Lead	mg/kg	15.9	1
TS009	Magnesium	mg/kg	9140	1
TS009	Manganese	mg/kg	482	1
TS009	Mercury	mg/kg	0.06	0
TS009	Nickel	mg/kg	24.9	1
TS009	Potassium	mg/kg	3770	1
TS009	Selenium	mg/kg	0.78	0
TS009	Silver	mg/kg	0.5	1
TS009	Sodium	mg/kg	372	1
TS009	Thallium	mg/kg	0.89	0
TS009	Vanadium	mg/kg	32.9	1
TS009	Zinc	mg/kg	68.8	1
TS012	Aluminum	mg/kg	13200	1
TS012	Antimony	mg/kg	0.81	1
TS012	Arsenic	mg/kg	3.5	0
TS012	Barium	mg/kg	108	1
TS012	Beryllium	mg/kg	0.65	1
TS012	Cadmium	mg/kg	0.08	1
TS012	Calcium	mg/kg	6460	1
TS012	Chromium	mg/kg	30.5	1
TS012	Cobalt	mg/kg	7	1
TS012	Copper	mg/kg	22.2	1
TS012	Iron	mg/kg	19100	1
TS012	Lead	mg/kg	14.8	1
TS012	Magnesium	mg/kg	6740	1
TS012	Manganese	mg/kg	249	1
TS012	Mercury	mg/kg	0.06	0
TS012	Nickel	mg/kg	20.6	1
TS012	Potassium	mg/kg	2720	1
TS012	Selenium	mg/kg	0.81	0
TS012	Silver	mg/kg	0.6	1
TS012	Sodium	mg/kg	376	1
TS012	Thallium	mg/kg	0.93	0
TS012	Vanadium	mg/kg	28.8	1
TS012	Zinc	mg/kg	71	1
TS015	Aluminum	mg/kg	5940	1
TS015	Antimony	mg/kg	1.5	0
TS015	Arsenic	mg/kg	9.5	0
TS015	Barium	mg/kg	90.8	1
TS015	Beryllium	mg/kg	0.28	1
TS015	Cadmium	mg/kg	0.15	1
TS015	Calcium	mg/kg	8190	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
TS015	Chromium	mg/kg	20.8	1
TS015	Cobalt	mg/kg	6	1
TS015	Copper	mg/kg	15.6	1
TS015	Iron	mg/kg	14200	1
TS015	Lead	mg/kg	8	1
TS015	Magnesium	mg/kg	3890	1
TS015	Manganese	mg/kg	1130	1
TS015	Mercury	mg/kg	0.12	0
TS015	Nickel	mg/kg	15.3	1
TS015	Potassium	mg/kg	1090	1
TS015	Selenium	mg/kg	1.7	0
TS015	Silver	mg/kg	0.52	1
TS015	Sodium	mg/kg	544	1
TS015	Vanadium	mg/kg	21.1	1
TS015	Zinc	mg/kg	46.9	1
TS016	Aluminum	mg/kg	5600	1
TS016	Antimony	mg/kg	0.96	0
TS016	Arsenic	mg/kg	10	1
TS016	Barium	mg/kg	68.9	1
TS016	Beryllium	mg/kg	0.28	1
TS016	Cadmium	mg/kg	0.07	0
TS016	Calcium	mg/kg	3720	1
TS016	Chromium	mg/kg	12.2	1
TS016	Cobalt	mg/kg	4.2	1
TS016	Copper	mg/kg	18	1
TS016	Iron	mg/kg	10800	1
TS016	Lead	mg/kg	10.2	1
TS016	Magnesium	mg/kg	2930	1
TS016	Manganese	mg/kg	284	1
TS016	Mercury	mg/kg	0.06	0
TS016	Nickel	mg/kg	12.4	1
TS016	Potassium	mg/kg	1420	1
TS016	Selenium	mg/kg	0.74	0
TS016	Silver	mg/kg	0.32	1
TS016	Sodium	mg/kg	204	1
TS016	Thallium	mg/kg	0.85	0
TS016	Vanadium	mg/kg	19.1	1
TS016	Zinc	mg/kg	45.6	1
TS017	Aluminum	mg/kg	11800	1
TS017	Antimony	mg/kg	1	1
TS017	Arsenic	mg/kg	3.8	1
TS017	Barium	mg/kg	139	1
TS017	Beryllium	mg/kg	0.58	1
TS017	Cadmium	mg/kg	0.07	0
TS017	Calcium	mg/kg	4650	1
TS017	Chromium	mg/kg	21.8	1
TS017	Cobalt	mg/kg	6.5	1
TS017	Copper	mg/kg	17.1	1
TS017	Iron	mg/kg	16200	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS017	Lead	mg/kg	17.3	1
TS017	Magnesium	mg/kg	4900	1
TS017	Manganese	mg/kg	438	1
TS017	Mercury	mg/kg	0.06	0
TS017	Nickel	mg/kg	17.5	1
TS017	Potassium	mg/kg	3110	1
TS017	Selenium	mg/kg	0.76	0
TS017	Silver	mg/kg	0.49	1
TS017	Sodium	mg/kg	260	1
TS017	Thallium	mg/kg	0.87	0
TS017	Vanadium	mg/kg	25.8	1
TS017	Zinc	mg/kg	64.1	1
TS018	Aluminum	mg/kg	10800	1
TS018	Antimony	mg/kg	0.71	0
TS018	Arsenic	mg/kg	3.3	1
TS018	Barium	mg/kg	120	1
TS018	Beryllium	mg/kg	0.51	1
TS018	Cadmium	mg/kg	0.07	0
TS018	Calcium	mg/kg	16100	1
TS018	Chromium	mg/kg	23.6	1
TS018	Cobalt	mg/kg	6	1
TS018	Copper	mg/kg	19.1	1
TS018	Iron	mg/kg	15700	1
TS018	Lead	mg/kg	11.7	1
TS018	Magnesium	mg/kg	7110	1
TS018	Manganese	mg/kg	397	1
TS018	Mercury	mg/kg	0.06	0
TS018	Nickel	mg/kg	17.7	1
TS018	Potassium	mg/kg	3420	1
TS018	Selenium	mg/kg	0.8	0
TS018	Silver	mg/kg	0.34	1
TS018	Sodium	mg/kg	295	1
TS018	Thallium	mg/kg	0.92	0
TS018	Vanadium	mg/kg	26.4	1
TS018	Zinc	mg/kg	60.6	1
TS019	Aluminum	mg/kg	6920	1
TS019	Antimony	mg/kg	0.66	0
TS019	Arsenic	mg/kg	3.8	1
TS019	Barium	mg/kg	71.3	1
TS019	Beryllium	mg/kg	0.29	1
TS019	Cadmium	mg/kg	0.07	0
TS019	Calcium	mg/kg	10800	1
TS019	Chromium	mg/kg	17.1	1
TS019	Cobalt	mg/kg	5.5	1
TS019	Copper	mg/kg	14.1	1
TS019	Iron	mg/kg	15000	1
TS019	Lead	mg/kg	8.4	1
TS019	Magnesium	mg/kg	4930	1
TS019	Manganese	mg/kg	297	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
TS019	Mercury	mg/kg	0.06	0
TS019	Nickel	mg/kg	23.8	1
TS019	Potassium	mg/kg	1730	1
TS019	Selenium	mg/kg	0.75	0
TS019	Silver	mg/kg	0.39	1
TS019	Sodium	mg/kg	198	1
TS019	Thallium	mg/kg	0.86	0
TS019	Vanadium	mg/kg	18.9	1
TS019	Zinc	mg/kg	43.9	1
TS020	Aluminum	mg/kg	6450	1
TS020	Antimony	mg/kg	2.1	1
TS020	Arsenic	mg/kg	4.4	0
TS020	Barium	mg/kg	78.6	1
TS020	Beryllium	mg/kg	0.35	1
TS020	Cadmium	mg/kg	0.15	0
TS020	Calcium	mg/kg	10900	1
TS020	Chromium	mg/kg	17.6	1
TS020	Cobalt	mg/kg	3.4	1
TS020	Copper	mg/kg	12.9	1
TS020	Iron	mg/kg	9740	1
TS020	Lead	mg/kg	8.5	1
TS020	Magnesium	mg/kg	3070	1
TS020	Manganese	mg/kg	291	1
TS020	Mercury	mg/kg	0.12	0
TS020	Nickel	mg/kg	10.2	1
TS020	Potassium	mg/kg	1300	1
TS020	Selenium	mg/kg	2.2	1
TS020	Silver	mg/kg	0.4	0
TS020	Sodium	mg/kg	480	0
TS020	Vanadium	mg/kg	16.2	1
TS020	Zinc	mg/kg	50.2	1
TS021	Aluminum	mg/kg	11400	1
TS021	Antimony	mg/kg	0.84	1
TS021	Arsenic	mg/kg	6.6	1
TS021	Barium	mg/kg	146	1
TS021	Beryllium	mg/kg	0.58	1
TS021	Cadmium	mg/kg	0.29	1
TS021	Calcium	mg/kg	13300	1
TS021	Chromium	mg/kg	26.8	1
TS021	Cobalt	mg/kg	7.5	1
TS021	Copper	mg/kg	23.3	1
TS021	Iron	mg/kg	19300	1
TS021	Lead	mg/kg	24.9	1
TS021	Magnesium	mg/kg	7320	1
TS021	Manganese	mg/kg	439	1
TS021	Mercury	mg/kg	0.05	0
TS021	Nickel	mg/kg	24.7	1
TS021	Potassium	mg/kg	2980	1
TS021	Selenium	mg/kg	0.71	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
TS021	Silver	mg/kg	0.63	1
TS021	Sodium	mg/kg	337	1
TS021	Thallium	mg/kg	0.82	0
TS021	Vanadium	mg/kg	40.6	1
TS021	Zinc	mg/kg	110	1
TS022	Aluminum	mg/kg	7770	1
TS022	Antimony	mg/kg	1.5	1
TS022	Arsenic	mg/kg	3.5	1
TS022	Barium	mg/kg	173	1
TS022	Beryllium	mg/kg	0.37	1
TS022	Cadmium	mg/kg	0.13	1
TS022	Calcium	mg/kg	34300	1
TS022	Chromium	mg/kg	20.9	1
TS022	Cobalt	mg/kg	5.3	1
TS022	Copper	mg/kg	13.4	1
TS022	Iron	mg/kg	13800	1
TS022	Lead	mg/kg	8.6	1
TS022	Magnesium	mg/kg	4150	1
TS022	Manganese	mg/kg	363	1
TS022	Mercury	mg/kg	0.09	0
TS022	Nickel	mg/kg	19.8	1
TS022	Potassium	mg/kg	1430	1
TS022	Selenium	mg/kg	1.3	0
TS022	Silver	mg/kg	0.38	1
TS022	Sodium	mg/kg	378	1
TS022	Vanadium	mg/kg	27.5	1
TS022	Zinc	mg/kg	63.1	1
TS023	Aluminum	mg/kg	10100	1
TS023	Antimony	mg/kg	1.3	0
TS023	Arsenic	mg/kg	5.3	1
TS023	Barium	mg/kg	201	1
TS023	Beryllium	mg/kg	0.55	1
TS023	Cadmium	mg/kg	0.13	0
TS023	Calcium	mg/kg	83500	1
TS023	Chromium	mg/kg	23.6	1
TS023	Cobalt	mg/kg	7.1	1
TS023	Copper	mg/kg	21.1	1
TS023	Iron	mg/kg	16200	1
TS023	Lead	mg/kg	11	1
TS023	Magnesium	mg/kg	7170	1
TS023	Manganese	mg/kg	414	1
TS023	Mercury	mg/kg	0.11	0
TS023	Nickel	mg/kg	21.1	1
TS023	Potassium	mg/kg	2580	1
TS023	Selenium	mg/kg	1.4	0
TS023	Silver	mg/kg	0.36	1
TS023	Sodium	mg/kg	476	1
TS023	Vanadium	mg/kg	31.8	1
TS023	Zinc	mg/kg	77.1	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
TS024	Aluminum	mg/kg	13400	1
TS024	Antimony	mg/kg	1.1	0
TS024	Arsenic	mg/kg	4.9	1
TS024	Barium	mg/kg	143	1
TS024	Beryllium	mg/kg	0.7	1
TS024	Cadmium	mg/kg	0.06	0
TS024	Calcium	mg/kg	5340	1
TS024	Chromium	mg/kg	35.1	1
TS024	Cobalt	mg/kg	10.8	1
TS024	Copper	mg/kg	26.7	1
TS024	Iron	mg/kg	24100	1
TS024	Lead	mg/kg	14.7	1
TS024	Magnesium	mg/kg	7090	1
TS024	Manganese	mg/kg	594	1
TS024	Mercury	mg/kg	0.05	0
TS024	Nickel	mg/kg	31.9	1
TS024	Potassium	mg/kg	3950	1
TS024	Selenium	mg/kg	0.72	0
TS024	Silver	mg/kg	0.78	1
TS024	Sodium	mg/kg	197	1
TS024	Thallium	mg/kg	0.83	0
TS024	Vanadium	mg/kg	36.9	1
TS024	Zinc	mg/kg	82.8	1
TS025	Aluminum	mg/kg	9340	1
TS025	Antimony	mg/kg	1.1	0
TS025	Arsenic	mg/kg	4.5	1
TS025	Barium	mg/kg	74.5	1
TS025	Beryllium	mg/kg	0.41	1
TS025	Cadmium	mg/kg	0.06	0
TS025	Calcium	mg/kg	3400	1
TS025	Chromium	mg/kg	20.5	1
TS025	Cobalt	mg/kg	6.9	1
TS025	Copper	mg/kg	16.9	1
TS025	Iron	mg/kg	16100	1
TS025	Lead	mg/kg	16.8	1
TS025	Magnesium	mg/kg	4660	1
TS025	Manganese	mg/kg	359	1
TS025	Mercury	mg/kg	0.05	0
TS025	Nickel	mg/kg	19.6	1
TS025	Potassium	mg/kg	1900	1
TS025	Selenium	mg/kg	0.72	0
TS025	Silver	mg/kg	0.49	1
TS025	Sodium	mg/kg	188	1
TS025	Thallium	mg/kg	0.83	0
TS025	Vanadium	mg/kg	24.6	1
TS025	Zinc	mg/kg	68.8	1
TS026	Aluminum	mg/kg	4500	1
TS026	Antimony	mg/kg	1.1	0
TS026	Arsenic	mg/kg	3.1	0

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS026	Barium	mg/kg	46.1	1
TS026	Beryllium	mg/kg	0.25	1
TS026	Cadmium	mg/kg	0.11	0
TS026	Calcium	mg/kg	2340	1
TS026	Chromium	mg/kg	7.6	1
TS026	Cobalt	mg/kg	1.9	1
TS026	Copper	mg/kg	3.7	1
TS026	Iron	mg/kg	6280	1
TS026	Lead	mg/kg	3.1	1
TS026	Magnesium	mg/kg	1670	1
TS026	Manganese	mg/kg	106	1
TS026	Mercury	mg/kg	0.08	0
TS026	Nickel	mg/kg	5.1	1
TS026	Potassium	mg/kg	868	1
TS026	Selenium	mg/kg	1.2	0
TS026	Silver	mg/kg	0.32	1
TS026	Sodium	mg/kg	358	0
TS026	Vanadium	mg/kg	9.1	1
TS026	Zinc	mg/kg	21.4	1
TS027	Aluminum	mg/kg	8890	1
TS027	Antimony	mg/kg	1.4	1
TS027	Arsenic	mg/kg	4.1	1
TS027	Barium	mg/kg	160	1
TS027	Beryllium	mg/kg	0.44	1
TS027	Cadmium	mg/kg	0.15	1
TS027	Calcium	mg/kg	7610	1
TS027	Chromium	mg/kg	14.8	1
TS027	Cobalt	mg/kg	6	1
TS027	Copper	mg/kg	14.5	1
TS027	Iron	mg/kg	12600	1
TS027	Lead	mg/kg	16.7	1
TS027	Magnesium	mg/kg	3650	1
TS027	Manganese	mg/kg	2020	1
TS027	Mercury	mg/kg	0.09	0
TS027	Nickel	mg/kg	14.4	1
TS027	Potassium	mg/kg	1790	1
TS027	Selenium	mg/kg	2.2	1
TS027	Silver	mg/kg	0.59	1
TS027	Sodium	mg/kg	334	1
TS027	Vanadium	mg/kg	20.7	1
TS027	Zinc	mg/kg	62.5	1
TS028	Aluminum	mg/kg	8550	1
TS028	Antimony	mg/kg	1.7	1
TS028	Arsenic	mg/kg	7.2	1
TS028	Barium	mg/kg	164	1
TS028	Beryllium	mg/kg	0.39	1
TS028	Cadmium	mg/kg	0.16	0
TS028	Calcium	mg/kg	22800	1
TS028	Chromium	mg/kg	18.6	1

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
TS028	Cobalt	mg/kg	7.1	1
TS028	Copper	mg/kg	21.8	1
TS028	Iron	mg/kg	16300	1
TS028	Lead	mg/kg	18.3	1
TS028	Magnesium	mg/kg	4510	1
TS028	Manganese	mg/kg	1010	1
TS028	Mercury	mg/kg	0.13	0
TS028	Nickel	mg/kg	22.1	1
TS028	Potassium	mg/kg	1680	1
TS028	Selenium	mg/kg	1.8	0
TS028	Silver	mg/kg	0.55	1
TS028	Sodium	mg/kg	427	1
TS028	Vanadium	mg/kg	22.5	1
TS028	Zinc	mg/kg	90.4	1
TS030	Aluminum	mg/kg	6090	1
TS030	Antimony	mg/kg	0.67	0
TS030	Arsenic	mg/kg	4.2	1
TS030	Barium	mg/kg	59.4	1
TS030	Beryllium	mg/kg	0.27	1
TS030	Cadmium	mg/kg	0.17	1
TS030	Calcium	mg/kg	4500	1
TS030	Chromium	mg/kg	13.4	1
TS030	Cobalt	mg/kg	4.4	1
TS030	Copper	mg/kg	13.4	1
TS030	Iron	mg/kg	11000	1
TS030	Lead	mg/kg	8.6	1
TS030	Magnesium	mg/kg	3200	1
TS030	Manganese	mg/kg	285	1
TS030	Mercury	mg/kg	0.06	0
TS030	Nickel	mg/kg	13.7	1
TS030	Potassium	mg/kg	1050	1
TS030	Selenium	mg/kg	0.76	0
TS030	Silver	mg/kg	0.31	1
TS030	Sodium	mg/kg	168	1
TS030	Thallium	mg/kg	0.88	0
TS030	Vanadium	mg/kg	17.8	1
TS030	Zinc	mg/kg	54.7	1
TS032	Aluminum	mg/kg	6880	1
TS032	Antimony	mg/kg	0.69	0
TS032	Arsenic	mg/kg	4.6	1
TS032	Barium	mg/kg	73.1	1
TS032	Beryllium	mg/kg	0.33	1
TS032	Cadmium	mg/kg	0.07	0
TS032	Calcium	mg/kg	17800	1
TS032	Chromium	mg/kg	12	1
TS032	Cobalt	mg/kg	5	1
TS032	Copper	mg/kg	15.8	1
TS032	Iron	mg/kg	13700	1
TS032	Lead	mg/kg	8.8	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS032	Magnesium	mg/kg	3760	1
TS032	Manganese	mg/kg	251	1
TS032	Mercury	mg/kg	0.06	0
TS032	Nickel	mg/kg	16.7	1
TS032	Potassium	mg/kg	1200	1
TS032	Selenium	mg/kg	0.78	0
TS032	Silver	mg/kg	0.41	1
TS032	Sodium	mg/kg	189	1
TS032	Thallium	mg/kg	0.9	0
TS032	Vanadium	mg/kg	17.2	1
TS032	Zinc	mg/kg	53	1
TS034	Aluminum	mg/kg	4270	1
TS034	Antimony	mg/kg	0.67	0
TS034	Arsenic	mg/kg	1.7	1
TS034	Barium	mg/kg	50.1	1
TS034	Beryllium	mg/kg	0.22	1
TS034	Cadmium	mg/kg	0.07	0
TS034	Calcium	mg/kg	9770	1
TS034	Chromium	mg/kg	9.6	1
TS034	Cobalt	mg/kg	3.1	1
TS034	Copper	mg/kg	7.9	1
TS034	Iron	mg/kg	8030	1
TS034	Lead	mg/kg	5.1	1
TS034	Magnesium	mg/kg	3170	1
TS034	Manganese	mg/kg	194	1
TS034	Mercury	mg/kg	0.06	0
TS034	Nickel	mg/kg	9.3	1
TS034	Potassium	mg/kg	944	1
TS034	Selenium	mg/kg	0.76	0
TS034	Silver	mg/kg	0.18	1
TS034	Sodium	mg/kg	182	1
TS034	Thallium	mg/kg	0.87	0
TS034	Vanadium	mg/kg	14	1
TS034	Zinc	mg/kg	33.6	1
TS036	Aluminum	mg/kg	20000	1
TS036	Antimony	mg/kg	0.67	0
TS036	Arsenic	mg/kg	5.5	1
TS036	Barium	mg/kg	301	1
TS036	Beryllium	mg/kg	0.98	1
TS036	Cadmium	mg/kg	0.2	1
TS036	Calcium	mg/kg	7790	1
TS036	Chromium	mg/kg	40.1	1
TS036	Cobalt	mg/kg	14.1	1
TS036	Copper	mg/kg	39.9	1
TS036	Iron	mg/kg	27800	1
TS036	Lead	mg/kg	37.3	1
TS036	Magnesium	mg/kg	8670	1
TS036	Manganese	mg/kg	836	1
TS036	Mercury	mg/kg	0.06	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
TS036	Nickel	mg/kg	38.4	1
TS036	Potassium	mg/kg	6120	1
TS036	Selenium	mg/kg	0.76	0
TS036	Silver	mg/kg	0.99	1
TS036	Sodium	mg/kg	279	1
TS036	Thallium	mg/kg	0.87	0
TS036	Vanadium	mg/kg	44.8	1
TS036	Zinc	mg/kg	120	1
TS038	Aluminum	mg/kg	14800	1
TS038	Antimony	mg/kg	1.6	1
TS038	Arsenic	mg/kg	19.3	1
TS038	Barium	mg/kg	315	1
TS038	Beryllium	mg/kg	0.71	1
TS038	Cadmium	mg/kg	0.74	1
TS038	Calcium	mg/kg	6750	1
TS038	Chromium	mg/kg	35.1	1
TS038	Cobalt	mg/kg	13.5	1
TS038	Copper	mg/kg	39.6	1
TS038	Iron	mg/kg	30100	1
TS038	Lead	mg/kg	95.6	1
TS038	Magnesium	mg/kg	6710	1
TS038	Manganese	mg/kg	803	1
TS038	Mercury	mg/kg	0.11	1
TS038	Nickel	mg/kg	41.6	1
TS038	Potassium	mg/kg	3920	1
TS038	Selenium	mg/kg	0.74	0
TS038	Silver	mg/kg	1	1
TS038	Sodium	mg/kg	259	1
TS038	Thallium	mg/kg	0.85	0
TS038	Vanadium	mg/kg	48.5	1
TS038	Zinc	mg/kg	147	1
TS039	Aluminum	mg/kg	4430	1
TS039	Antimony	mg/kg	0.84	0
TS039	Arsenic	mg/kg	1.4	1
TS039	Barium	mg/kg	43.3	1
TS039	Beryllium	mg/kg	0.21	1
TS039	Cadmium	mg/kg	0.08	0
TS039	Calcium	mg/kg	6760	1
TS039	Chromium	mg/kg	8.8	1
TS039	Cobalt	mg/kg	2.2	1
TS039	Copper	mg/kg	6.5	1
TS039	Iron	mg/kg	7670	1
TS039	Lead	mg/kg	5.1	1
TS039	Magnesium	mg/kg	2650	1
TS039	Manganese	mg/kg	152	1
TS039	Mercury	mg/kg	0.07	0
TS039	Nickel	mg/kg	6.9	1
TS039	Potassium	mg/kg	791	1
TS039	Selenium	mg/kg	0.95	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
TS039	Silver	mg/kg	0.25	1
TS039	Sodium	mg/kg	245	1
TS039	Thallium	mg/kg	1.1	0
TS039	Vanadium	mg/kg	19.2	1
TS039	Zinc	mg/kg	46.4	1
TS040	Aluminum	mg/kg	5120	1
TS040	Antimony	mg/kg	0.81	1
TS040	Arsenic	mg/kg	2.4	1
TS040	Barium	mg/kg	51.5	1
TS040	Beryllium	mg/kg	0.23	1
TS040	Cadmium	mg/kg	0.06	0
TS040	Calcium	mg/kg	9240	1
TS040	Chromium	mg/kg	9.4	1
TS040	Cobalt	mg/kg	3	1
TS040	Copper	mg/kg	7.9	1
TS040	Iron	mg/kg	8670	1
TS040	Lead	mg/kg	6.7	1
TS040	Magnesium	mg/kg	4470	1
TS040	Manganese	mg/kg	146	1
TS040	Mercury	mg/kg	0.05	0
TS040	Nickel	mg/kg	8.2	1
TS040	Potassium	mg/kg	1180	1
TS040	Selenium	mg/kg	0.72	0
TS040	Silver	mg/kg	0.37	0
TS040	Sodium	mg/kg	212	0
TS040	Thallium	mg/kg	0.82	0
TS040	Vanadium	mg/kg	14.4	1
TS040	Zinc	mg/kg	37.3	1
TS041	Aluminum	mg/kg	5610	1
TS041	Antimony	mg/kg	0.86	0
TS041	Arsenic	mg/kg	3.5	1
TS041	Barium	mg/kg	54.7	1
TS041	Beryllium	mg/kg	0.28	1
TS041	Cadmium	mg/kg	0.09	0
TS041	Calcium	mg/kg	3690	1
TS041	Chromium	mg/kg	12.8	1
TS041	Cobalt	mg/kg	3.8	1
TS041	Copper	mg/kg	9.6	1
TS041	Iron	mg/kg	10800	1
TS041	Lead	mg/kg	5.6	1
TS041	Magnesium	mg/kg	3320	1
TS041	Manganese	mg/kg	326	1
TS041	Mercury	mg/kg	0.07	0
TS041	Nickel	mg/kg	11.3	1
TS041	Potassium	mg/kg	1070	1
TS041	Selenium	mg/kg	0.97	0
TS041	Silver	mg/kg	0.3	1
TS041	Sodium	mg/kg	221	1
TS041	Thallium	mg/kg	1.1	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
TS041	Vanadium	mg/kg	18.1	1
TS041	Zinc	mg/kg	35	1
TS046	Aluminum	mg/kg	11700	1
TS046	Antimony	mg/kg	2.2	1
TS046	Arsenic	mg/kg	9.6	0
TS046	Barium	mg/kg	101	1
TS046	Beryllium	mg/kg	0.45	1
TS046	Cadmium	mg/kg	0.14	0
TS046	Calcium	mg/kg	43400	1
TS046	Chromium	mg/kg	24.7	1
TS046	Cobalt	mg/kg	10.4	1
TS046	Copper	mg/kg	26.8	1
TS046	Iron	mg/kg	23400	1
TS046	Lead	mg/kg	13.2	1
TS046	Magnesium	mg/kg	7910	1
TS046	Manganese	mg/kg	372	1
TS046	Mercury	mg/kg	0.21	1
TS046	Nickel	mg/kg	24.1	1
TS046	Potassium	mg/kg	1700	1
TS046	Selenium	mg/kg	1.6	0
TS046	Silver	mg/kg	0.73	1
TS046	Sodium	mg/kg	479	0
TS046	Vanadium	mg/kg	40.9	1
TS046	Zinc	mg/kg	71.9	1
TS047	Aluminum	mg/kg	8700	1
TS047	Antimony	mg/kg	1.2	0
TS047	Arsenic	mg/kg	3.9	0
TS047	Barium	mg/kg	132	1
TS047	Beryllium	mg/kg	0.46	1
TS047	Cadmium	mg/kg	0.12	0
TS047	Calcium	mg/kg	10900	1
TS047	Chromium	mg/kg	12.8	1
TS047	Cobalt	mg/kg	5	1
TS047	Copper	mg/kg	10.4	1
TS047	Iron	mg/kg	14000	1
TS047	Lead	mg/kg	11	1
TS047	Magnesium	mg/kg	4850	1
TS047	Manganese	mg/kg	390	1
TS047	Mercury	mg/kg	0.1	0
TS047	Nickel	mg/kg	11.8	1
TS047	Potassium	mg/kg	1390	1
TS047	Selenium	mg/kg	1.3	0
TS047	Silver	mg/kg	0.65	1
TS047	Sodium	mg/kg	391	1
TS047	Vanadium	mg/kg	21.3	1
TS047	Zinc	mg/kg	57.3	1
TS048	Aluminum	mg/kg	1550	1
TS048	Antimony	mg/kg	0.76	0
TS048	Arsenic	mg/kg	1.4	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
TS048	Barium	mg/kg	9.7	1
TS048	Beryllium	mg/kg	0.1	1
TS048	Cadmium	mg/kg	0.08	0
TS048	Calcium	mg/kg	1150	1
TS048	Chromium	mg/kg	2	1
TS048	Cobalt	mg/kg	0.53	1
TS048	Copper	mg/kg	2.1	1
TS048	Iron	mg/kg	3220	1
TS048	Lead	mg/kg	1.2	1
TS048	Magnesium	mg/kg	646	1
TS048	Manganese	mg/kg	47.4	1
TS048	Mercury	mg/kg	0.06	0
TS048	Nickel	mg/kg	1.2	1
TS048	Potassium	mg/kg	422	1
TS048	Selenium	mg/kg	0.86	0
TS048	Silver	mg/kg	0.2	0
TS048	Sodium	mg/kg	209	1
TS048	Thallium	mg/kg	0.99	0
TS048	Vanadium	mg/kg	5.4	1
TS048	Zinc	mg/kg	7.5	1
TS049	Aluminum	mg/kg	3870	1
TS049	Antimony	mg/kg	0.63	0
TS049	Arsenic	mg/kg	1.7	1
TS049	Barium	mg/kg	33.5	1
TS049	Beryllium	mg/kg	0.23	1
TS049	Cadmium	mg/kg	0.06	0
TS049	Calcium	mg/kg	2440	1
TS049	Chromium	mg/kg	5.9	1
TS049	Cobalt	mg/kg	2.1	1
TS049	Copper	mg/kg	9.9	1
TS049	Iron	mg/kg	5980	1
TS049	Lead	mg/kg	6.8	1
TS049	Magnesium	mg/kg	1780	1
TS049	Manganese	mg/kg	126	1
TS049	Mercury	mg/kg	0.05	0
TS049	Nickel	mg/kg	5.1	1
TS049	Potassium	mg/kg	790	1
TS049	Selenium	mg/kg	0.72	0
TS049	Silver	mg/kg	0.17	0
TS049	Sodium	mg/kg	169	1
TS049	Thallium	mg/kg	0.83	0
TS049	Vanadium	mg/kg	12.6	1
TS049	Zinc	mg/kg	23.2	1
TS050	Aluminum	mg/kg	3760	1
TS050	Antimony	mg/kg	1.1	0
TS050	Arsenic	mg/kg	1.1	0
TS050	Barium	mg/kg	25.9	1
TS050	Beryllium	mg/kg	0.15	1
TS050	Cadmium	mg/kg	0.08	0

Table C2-2
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Sample ID	Analyte	Unit	Value	Detect
TS050	Calcium	mg/kg	1850	1
TS050	Chromium	mg/kg	9.4	1
TS050	Cobalt	mg/kg	1.9	1
TS050	Copper	mg/kg	13.6	1
TS050	Iron	mg/kg	5970	1
TS050	Lead	mg/kg	5.8	1
TS050	Magnesium	mg/kg	1920	1
TS050	Manganese	mg/kg	77.5	1
TS050	Mercury	mg/kg	0.07	0
TS050	Nickel	mg/kg	5.8	1
TS050	Potassium	mg/kg	576	1
TS050	Selenium	mg/kg	0.91	0
TS050	Silver	mg/kg	0.45	0
TS050	Sodium	mg/kg	303	0
TS050	Thallium	mg/kg	1	0
TS050	Vanadium	mg/kg	10.6	1
TS050	Zinc	mg/kg	20.7	1
TS052	Aluminum	mg/kg	2040	1
TS052	Antimony	mg/kg	0.66	0
TS052	Arsenic	mg/kg	1.7	1
TS052	Barium	mg/kg	36.8	1
TS052	Beryllium	mg/kg	0.14	1
TS052	Cadmium	mg/kg	0.07	0
TS052	Calcium	mg/kg	2490	1
TS052	Chromium	mg/kg	3.9	1
TS052	Cobalt	mg/kg	1.9	1
TS052	Copper	mg/kg	6.7	1
TS052	Iron	mg/kg	5480	1
TS052	Lead	mg/kg	8.4	1
TS052	Magnesium	mg/kg	1210	1
TS052	Manganese	mg/kg	449	1
TS052	Mercury	mg/kg	0.06	0
TS052	Nickel	mg/kg	3.8	1
TS052	Potassium	mg/kg	581	1
TS052	Selenium	mg/kg	0.75	0
TS052	Silver	mg/kg	0.18	0
TS052	Sodium	mg/kg	139	1
TS052	Thallium	mg/kg	0.86	0
TS052	Vanadium	mg/kg	6.7	1
TS052	Zinc	mg/kg	17.5	1
TS053	Aluminum	mg/kg	3080	1
TS053	Antimony	mg/kg	0.7	0
TS053	Arsenic	mg/kg	1.5	1
TS053	Barium	mg/kg	25.8	1
TS053	Beryllium	mg/kg	0.2	1
TS053	Cadmium	mg/kg	0.07	0
TS053	Calcium	mg/kg	1420	1
TS053	Chromium	mg/kg	5.9	1
TS053	Cobalt	mg/kg	1.9	1

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
TS053	Copper	mg/kg	6.4	1
TS053	Iron	mg/kg	5700	1
TS053	Lead	mg/kg	3.9	1
TS053	Magnesium	mg/kg	1430	1
TS053	Manganese	mg/kg	109	1
TS053	Mercury	mg/kg	0.06	0
TS053	Nickel	mg/kg	4.8	1
TS053	Potassium	mg/kg	792	1
TS053	Selenium	mg/kg	0.79	0
TS053	Silver	mg/kg	0.23	0
TS053	Sodium	mg/kg	178	0
TS053	Thallium	mg/kg	0.91	0
TS053	Vanadium	mg/kg	10.7	1
TS053	Zinc	mg/kg	15.8	1
TS054	Aluminum	mg/kg	3670	1
TS054	Antimony	mg/kg	0.6	0
TS054	Arsenic	mg/kg	1.2	1
TS054	Barium	mg/kg	42.4	1
TS054	Beryllium	mg/kg	0.22	1
TS054	Cadmium	mg/kg	0.06	0
TS054	Calcium	mg/kg	2470	1
TS054	Chromium	mg/kg	8.4	1
TS054	Cobalt	mg/kg	3.7	1
TS054	Copper	mg/kg	7.3	1
TS054	Iron	mg/kg	6800	1
TS054	Lead	mg/kg	6	1
TS054	Magnesium	mg/kg	2440	1
TS054	Manganese	mg/kg	243	1
TS054	Mercury	mg/kg	0.05	0
TS054	Nickel	mg/kg	8.4	1
TS054	Potassium	mg/kg	1120	1
TS054	Selenium	mg/kg	0.68	0
TS054	Silver	mg/kg	0.38	0
TS054	Sodium	mg/kg	193	0
TS054	Thallium	mg/kg	0.79	0
TS054	Vanadium	mg/kg	12.8	1
TS054	Zinc	mg/kg	22.4	1
TS055	Aluminum	mg/kg	3740	1
TS055	Antimony	mg/kg	0.88	0
TS055	Arsenic	mg/kg	2.8	0
TS055	Barium	mg/kg	72.2	1
TS055	Beryllium	mg/kg	0.23	1
TS055	Cadmium	mg/kg	0.09	0
TS055	Calcium	mg/kg	13800	1
TS055	Chromium	mg/kg	9.9	1
TS055	Cobalt	mg/kg	2.6	1
TS055	Copper	mg/kg	5.7	1
TS055	Iron	mg/kg	7270	1
TS055	Lead	mg/kg	3.9	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS055	Magnesium	mg/kg	2310	1
TS055	Manganese	mg/kg	288	1
TS055	Mercury	mg/kg	0.07	0
TS055	Nickel	mg/kg	7.5	1
TS055	Potassium	mg/kg	937	1
TS055	Selenium	mg/kg	1	0
TS055	Silver	mg/kg	0.34	1
TS055	Sodium	mg/kg	315	1
TS055	Thallium	mg/kg	1.1	0
TS055	Vanadium	mg/kg	12	1
TS055	Zinc	mg/kg	24.8	1
TS058	Aluminum	mg/kg	1210	1
TS058	Antimony	mg/kg	0.84	0
TS058	Arsenic	mg/kg	1.1	0
TS058	Barium	mg/kg	11	1
TS058	Beryllium	mg/kg	0.07	1
TS058	Cadmium	mg/kg	0.08	0
TS058	Calcium	mg/kg	910	1
TS058	Chromium	mg/kg	1.6	1
TS058	Cobalt	mg/kg	0.6	1
TS058	Copper	mg/kg	1.7	1
TS058	Iron	mg/kg	2040	1
TS058	Lead	mg/kg	1.5	0
TS058	Magnesium	mg/kg	569	1
TS058	Manganese	mg/kg	64.4	1
TS058	Mercury	mg/kg	0.07	0
TS058	Nickel	mg/kg	1.2	1
TS058	Potassium	mg/kg	298	1
TS058	Selenium	mg/kg	0.95	0
TS058	Silver	mg/kg	0.22	0
TS058	Sodium	mg/kg	203	1
TS058	Thallium	mg/kg	1.1	0
TS058	Vanadium	mg/kg	3.4	1
TS058	Zinc	mg/kg	7	1
TS059	Aluminum	mg/kg	4410	1
TS059	Antimony	mg/kg	0.91	0
TS059	Arsenic	mg/kg	1.4	1
TS059	Barium	mg/kg	57.4	1
TS059	Beryllium	mg/kg	0.22	1
TS059	Cadmium	mg/kg	0.08	0
TS059	Calcium	mg/kg	22800	1
TS059	Chromium	mg/kg	15.8	1
TS059	Cobalt	mg/kg	2.5	1
TS059	Copper	mg/kg	8.2	1
TS059	Iron	mg/kg	8030	1
TS059	Lead	mg/kg	6.5	1
TS059	Magnesium	mg/kg	2780	1
TS059	Manganese	mg/kg	134	1
TS059	Mercury	mg/kg	0.07	0

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS059	Nickel	mg/kg	7.4	1
TS059	Potassium	mg/kg	767	1
TS059	Selenium	mg/kg	0.92	1
TS059	Silver	mg/kg	0.34	0
TS059	Sodium	mg/kg	254	0
TS059	Thallium	mg/kg	1	0
TS059	Vanadium	mg/kg	13.3	1
TS059	Zinc	mg/kg	32.2	1
TS060	Aluminum	mg/kg	8190	1
TS060	Antimony	mg/kg	1	1
TS060	Arsenic	mg/kg	25.5	1
TS060	Barium	mg/kg	75.4	1
TS060	Beryllium	mg/kg	0.34	1
TS060	Cadmium	mg/kg	0.06	0
TS060	Calcium	mg/kg	16700	1
TS060	Chromium	mg/kg	31.4	1
TS060	Cobalt	mg/kg	7	1
TS060	Copper	mg/kg	15.6	1
TS060	Iron	mg/kg	17300	1
TS060	Lead	mg/kg	7.8	1
TS060	Magnesium	mg/kg	5960	1
TS060	Manganese	mg/kg	296	1
TS060	Mercury	mg/kg	0.05	0
TS060	Nickel	mg/kg	28.4	1
TS060	Potassium	mg/kg	1020	1
TS060	Selenium	mg/kg	0.69	0
TS060	Silver	mg/kg	0.6	0
TS060	Sodium	mg/kg	216	0
TS060	Thallium	mg/kg	0.79	0
TS060	Vanadium	mg/kg	28	1
TS060	Zinc	mg/kg	55.6	1
TS062	Aluminum	mg/kg	2600	1
TS062	Antimony	mg/kg	0.78	0
TS062	Arsenic	mg/kg	2.5	1
TS062	Barium	mg/kg	40.2	1
TS062	Beryllium	mg/kg	0.12	1
TS062	Cadmium	mg/kg	0.08	0
TS062	Calcium	mg/kg	3960	1
TS062	Chromium	mg/kg	6.5	1
TS062	Cobalt	mg/kg	1.7	1
TS062	Copper	mg/kg	5	1
TS062	Iron	mg/kg	5240	1
TS062	Lead	mg/kg	5.1	1
TS062	Magnesium	mg/kg	1680	1
TS062	Manganese	mg/kg	129	1
TS062	Mercury	mg/kg	0.07	0
TS062	Nickel	mg/kg	4.9	1
TS062	Potassium	mg/kg	532	1
TS062	Selenium	mg/kg	0.88	0

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS062	Silver	mg/kg	0.24	1
TS062	Sodium	mg/kg	210	1
TS062	Thallium	mg/kg	1	0
TS062	Vanadium	mg/kg	9	1
TS062	Zinc	mg/kg	20.2	1
TS063	Aluminum	mg/kg	6790	1
TS063	Antimony	mg/kg	0.61	0
TS063	Arsenic	mg/kg	9.2	1
TS063	Barium	mg/kg	73.4	1
TS063	Beryllium	mg/kg	0.23	1
TS063	Cadmium	mg/kg	0.06	0
TS063	Calcium	mg/kg	33400	1
TS063	Chromium	mg/kg	17.6	1
TS063	Cobalt	mg/kg	5.6	1
TS063	Copper	mg/kg	22	1
TS063	Iron	mg/kg	16500	1
TS063	Lead	mg/kg	8.5	1
TS063	Magnesium	mg/kg	7750	1
TS063	Manganese	mg/kg	250	1
TS063	Mercury	mg/kg	0.05	0
TS063	Nickel	mg/kg	17.9	1
TS063	Potassium	mg/kg	1160	1
TS063	Selenium	mg/kg	0.68	0
TS063	Silver	mg/kg	0.73	0
TS063	Sodium	mg/kg	282	1
TS063	Thallium	mg/kg	0.78	0
TS063	Vanadium	mg/kg	30.7	1
TS063	Zinc	mg/kg	50.5	1
TS068	Aluminum	mg/kg	7960	1
TS068	Antimony	mg/kg	1	1
TS068	Arsenic	mg/kg	14.9	1
TS068	Barium	mg/kg	116	1
TS068	Beryllium	mg/kg	0.42	1
TS068	Cadmium	mg/kg	0.06	0
TS068	Calcium	mg/kg	21000	1
TS068	Chromium	mg/kg	21.1	1
TS068	Cobalt	mg/kg	7.9	1
TS068	Copper	mg/kg	28.8	1
TS068	Iron	mg/kg	25000	1
TS068	Lead	mg/kg	14.2	1
TS068	Magnesium	mg/kg	5170	1
TS068	Manganese	mg/kg	452	1
TS068	Mercury	mg/kg	0.05	0
TS068	Nickel	mg/kg	24.1	1
TS068	Potassium	mg/kg	1210	1
TS068	Selenium	mg/kg	0.78	1
TS068	Silver	mg/kg	0.77	1
TS068	Sodium	mg/kg	164	1
TS068	Thallium	mg/kg	0.82	0

Table C2-2
ProUCL Sediment BG Input Table
Upper Columbia River
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Sample ID	Analyte	Unit	Value	Detect
TS068	Vanadium	mg/kg	33	1
TS068	Zinc	mg/kg	78.5	1
TS069	Aluminum	mg/kg	6430	1
TS069	Antimony	mg/kg	0.89	0
TS069	Arsenic	mg/kg	4	1
TS069	Barium	mg/kg	49.4	1
TS069	Beryllium	mg/kg	0.38	1
TS069	Cadmium	mg/kg	0.09	0
TS069	Calcium	mg/kg	2280	1
TS069	Chromium	mg/kg	13.6	1
TS069	Cobalt	mg/kg	4	1
TS069	Copper	mg/kg	8.8	1
TS069	Iron	mg/kg	12900	1
TS069	Lead	mg/kg	7.1	1
TS069	Magnesium	mg/kg	3640	1
TS069	Manganese	mg/kg	191	1
TS069	Mercury	mg/kg	0.08	0
TS069	Nickel	mg/kg	13.3	1
TS069	Potassium	mg/kg	910	1
TS069	Selenium	mg/kg	1	0
TS069	Silver	mg/kg	0.47	1
TS069	Sodium	mg/kg	219	1
TS069	Vanadium	mg/kg	24.7	1
TS069	Zinc	mg/kg	34.5	1
TS071	Aluminum	mg/kg	7360	1
TS071	Antimony	mg/kg	1.6	1
TS071	Arsenic	mg/kg	42.5	1
TS071	Barium	mg/kg	153	1
TS071	Beryllium	mg/kg	0.41	1
TS071	Cadmium	mg/kg	0.07	0
TS071	Calcium	mg/kg	25400	1
TS071	Chromium	mg/kg	21.5	1
TS071	Cobalt	mg/kg	8.8	1
TS071	Copper	mg/kg	49	1
TS071	Iron	mg/kg	27400	1
TS071	Lead	mg/kg	14.7	1
TS071	Magnesium	mg/kg	4570	1
TS071	Manganese	mg/kg	602	1
TS071	Mercury	mg/kg	0.05	0
TS071	Nickel	mg/kg	31.9	1
TS071	Potassium	mg/kg	1230	1
TS071	Selenium	mg/kg	1	1
TS071	Silver	mg/kg	0.78	1
TS071	Sodium	mg/kg	182	1
TS071	Thallium	mg/kg	1.1	1
TS071	Vanadium	mg/kg	35.1	1
TS071	Zinc	mg/kg	59.7	1
TS073	Aluminum	mg/kg	4190	1
TS073	Antimony	mg/kg	0.82	0

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS073	Arsenic	mg/kg	2.5	0
TS073	Barium	mg/kg	31.8	1
TS073	Beryllium	mg/kg	0.25	1
TS073	Cadmium	mg/kg	0.08	0
TS073	Calcium	mg/kg	12400	1
TS073	Chromium	mg/kg	8.4	1
TS073	Cobalt	mg/kg	2.4	1
TS073	Copper	mg/kg	5.6	1
TS073	Iron	mg/kg	6660	1
TS073	Lead	mg/kg	3.4	1
TS073	Magnesium	mg/kg	6860	1
TS073	Manganese	mg/kg	140	1
TS073	Mercury	mg/kg	0.07	0
TS073	Nickel	mg/kg	6.3	1
TS073	Potassium	mg/kg	741	1
TS073	Selenium	mg/kg	0.95	1
TS073	Silver	mg/kg	0.26	1
TS073	Sodium	mg/kg	261	1
TS073	Thallium	mg/kg	1.1	0
TS073	Vanadium	mg/kg	10.2	1
TS073	Zinc	mg/kg	16.8	1
TS075	Aluminum	mg/kg	4530	1
TS075	Antimony	mg/kg	0.87	0
TS075	Arsenic	mg/kg	1.4	1
TS075	Barium	mg/kg	42.6	1
TS075	Beryllium	mg/kg	0.3	1
TS075	Cadmium	mg/kg	0.09	0
TS075	Calcium	mg/kg	2870	1
TS075	Chromium	mg/kg	13.1	1
TS075	Cobalt	mg/kg	3.1	1
TS075	Copper	mg/kg	7.3	1
TS075	Iron	mg/kg	9730	1
TS075	Lead	mg/kg	3.9	1
TS075	Magnesium	mg/kg	2860	1
TS075	Manganese	mg/kg	151	1
TS075	Mercury	mg/kg	0.07	0
TS075	Nickel	mg/kg	8.7	1
TS075	Potassium	mg/kg	714	1
TS075	Selenium	mg/kg	0.99	0
TS075	Silver	mg/kg	0.25	1
TS075	Sodium	mg/kg	264	1
TS075	Thallium	mg/kg	1.1	0
TS075	Vanadium	mg/kg	20.8	1
TS075	Zinc	mg/kg	24.5	1
TS084	Aluminum	mg/kg	3350	1
TS084	Antimony	mg/kg	0.61	0
TS084	Arsenic	mg/kg	1.8	1
TS084	Barium	mg/kg	37.7	1
TS084	Beryllium	mg/kg	0.16	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS084	Cadmium	mg/kg	0.07	1
TS084	Calcium	mg/kg	1780	1
TS084	Chromium	mg/kg	6.8	1
TS084	Cobalt	mg/kg	2.4	1
TS084	Copper	mg/kg	5.5	1
TS084	Iron	mg/kg	6340	1
TS084	Lead	mg/kg	5.3	1
TS084	Magnesium	mg/kg	1610	1
TS084	Manganese	mg/kg	114	1
TS084	Mercury	mg/kg	0.05	0
TS084	Nickel	mg/kg	6	1
TS084	Potassium	mg/kg	689	1
TS084	Selenium	mg/kg	0.69	0
TS084	Silver	mg/kg	0.16	0
TS084	Sodium	mg/kg	141	1
TS084	Thallium	mg/kg	0.79	0
TS084	Vanadium	mg/kg	10.8	1
TS084	Zinc	mg/kg	27.4	1
TS090	Aluminum	mg/kg	5940	1
TS090	Antimony	mg/kg	0.9	0
TS090	Arsenic	mg/kg	9.7	1
TS090	Barium	mg/kg	42.6	1
TS090	Beryllium	mg/kg	0.2	1
TS090	Cadmium	mg/kg	0.09	0
TS090	Calcium	mg/kg	4590	1
TS090	Chromium	mg/kg	16.6	1
TS090	Cobalt	mg/kg	4.7	1
TS090	Copper	mg/kg	10.6	1
TS090	Iron	mg/kg	12500	1
TS090	Lead	mg/kg	7.2	1
TS090	Magnesium	mg/kg	4240	1
TS090	Manganese	mg/kg	192	1
TS090	Mercury	mg/kg	0.07	0
TS090	Nickel	mg/kg	25.9	1
TS090	Potassium	mg/kg	771	1
TS090	Selenium	mg/kg	1	0
TS090	Silver	mg/kg	0.75	0
TS090	Sodium	mg/kg	408	1
TS090	Vanadium	mg/kg	29.3	1
TS090	Zinc	mg/kg	37	1
TS096	Aluminum	mg/kg	4190	1
TS096	Antimony	mg/kg	1.2	0
TS096	Arsenic	mg/kg	4.8	1
TS096	Barium	mg/kg	42.4	1
TS096	Beryllium	mg/kg	0.21	1
TS096	Cadmium	mg/kg	0.08	0
TS096	Calcium	mg/kg	13700	1
TS096	Chromium	mg/kg	11.3	1
TS096	Cobalt	mg/kg	3.9	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS096	Copper	mg/kg	10.2	1
TS096	Iron	mg/kg	10900	1
TS096	Lead	mg/kg	9.3	1
TS096	Magnesium	mg/kg	3480	1
TS096	Manganese	mg/kg	183	1
TS096	Mercury	mg/kg	0.06	0
TS096	Nickel	mg/kg	11.7	1
TS096	Potassium	mg/kg	571	1
TS096	Selenium	mg/kg	0.88	0
TS096	Silver	mg/kg	0.51	0
TS096	Sodium	mg/kg	237	0
TS096	Thallium	mg/kg	1	0
TS096	Vanadium	mg/kg	20	1
TS096	Zinc	mg/kg	48.4	1
TS101	Aluminum	mg/kg	6750	1
TS101	Antimony	mg/kg	0.91	0
TS101	Arsenic	mg/kg	3.8	1
TS101	Barium	mg/kg	60.2	1
TS101	Beryllium	mg/kg	0.26	1
TS101	Cadmium	mg/kg	0.11	1
TS101	Calcium	mg/kg	36200	1
TS101	Chromium	mg/kg	15.7	1
TS101	Cobalt	mg/kg	4.6	1
TS101	Copper	mg/kg	12.7	1
TS101	Iron	mg/kg	13900	1
TS101	Lead	mg/kg	8.1	1
TS101	Magnesium	mg/kg	4910	1
TS101	Manganese	mg/kg	208	1
TS101	Mercury	mg/kg	0.06	0
TS101	Nickel	mg/kg	16	1
TS101	Potassium	mg/kg	1380	1
TS101	Selenium	mg/kg	0.92	0
TS101	Silver	mg/kg	0.59	0
TS101	Sodium	mg/kg	297	0
TS101	Thallium	mg/kg	1.1	0
TS101	Vanadium	mg/kg	26.6	1
TS101	Zinc	mg/kg	138	1
TS105	Aluminum	mg/kg	3480	1
TS105	Antimony	mg/kg	0.74	0
TS105	Arsenic	mg/kg	2.6	1
TS105	Barium	mg/kg	28.4	1
TS105	Beryllium	mg/kg	0.13	1
TS105	Cadmium	mg/kg	0.07	0
TS105	Calcium	mg/kg	3330	1
TS105	Chromium	mg/kg	7.4	1
TS105	Cobalt	mg/kg	2.1	1
TS105	Copper	mg/kg	6.7	1
TS105	Iron	mg/kg	6850	1
TS105	Lead	mg/kg	3.3	1

Table C2-2
ProUCL Sediment BG Input Table
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Sample ID	Analyte	Unit	Value	Detect
TS105	Magnesium	mg/kg	2470	1
TS105	Manganese	mg/kg	123	1
TS105	Mercury	mg/kg	0.06	0
TS105	Nickel	mg/kg	8.3	1
TS105	Potassium	mg/kg	596	1
TS105	Selenium	mg/kg	0.84	0
TS105	Silver	mg/kg	0.37	0
TS105	Sodium	mg/kg	255	0
TS105	Thallium	mg/kg	0.96	0
TS105	Vanadium	mg/kg	12.4	1
TS105	Zinc	mg/kg	21.2	1
TS106	Aluminum	mg/kg	9470	1
TS106	Antimony	mg/kg	0.62	0
TS106	Arsenic	mg/kg	7.7	1
TS106	Barium	mg/kg	104	1
TS106	Beryllium	mg/kg	0.69	1
TS106	Cadmium	mg/kg	0.06	0
TS106	Calcium	mg/kg	6120	1
TS106	Chromium	mg/kg	31.8	1
TS106	Cobalt	mg/kg	7	1
TS106	Copper	mg/kg	21.4	1
TS106	Iron	mg/kg	18800	1
TS106	Lead	mg/kg	23.7	1
TS106	Magnesium	mg/kg	6030	1
TS106	Manganese	mg/kg	348	1
TS106	Mercury	mg/kg	0.08	1
TS106	Nickel	mg/kg	24.6	1
TS106	Potassium	mg/kg	1290	1
TS106	Selenium	mg/kg	0.7	0
TS106	Silver	mg/kg	0.69	1
TS106	Sodium	mg/kg	345	1
TS106	Thallium	mg/kg	0.8	0
TS106	Vanadium	mg/kg	39.5	1
TS106	Zinc	mg/kg	78.8	1

Notes:

All samples included in this table and inputted into ProUCL are those assigned to Cluster 3.

For input into ProUCL, detection status is noted as following: nondetected values are indicated with 0 and detected values are indicated with 1.

Table C2-3
ProUCL Sediment BG Output Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 2025-05-28 10:39:38 AM
From File	file664c6d3dcef.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

concDL (no nure, bootstrap bkgd samples removed_aluminum)

General Statistics

Total Number of Observations	669	Number of Missing Observations	0
Number of Distinct Observations	461		
Number of Detects	667	Number of Non-Detects	2
Number of Distinct Detects	461	Number of Distinct Non-Detects	2
Minimum Detect	1210	Minimum Non-Detect	5300
Maximum Detect	46000	Maximum Non-Detect	8700
Variance Detected	11631405	Percent Non-Detects	0.299%
Mean Detected	7659	SD Detected	3410
Mean of Detected Logged Data	8.861	SD of Detected Logged Data	0.411

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.856	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.111	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	7652	KM SD	3407
95% UTL95% Coverage	13600	95% KM UPL (t)	13268
90% KM Percentile (z)	12018	95% KM Percentile (z)	13256
99% KM Percentile (z)	15577	95% KM USL	20506

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	7647	SD	3413
95% UTL95% Coverage	13606	95% UPL (t)	13273
90% Percentile (z)	12021	95% Percentile (z)	13261
99% Percentile (z)	15587	95% USL	20525

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.894	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	

K-S Test Statistic	0.0538	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0366	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	6.176	k star (bias corrected MLE)	6.15
Theta hat (MLE)	1240	Theta star (bias corrected MLE)	1245
nu hat (MLE)	8239	nu star (bias corrected)	8204
MLE Mean (bias corrected)	7659		
MLE Sd (bias corrected)	3089	95% Percentile of Chisquare (2kstar)	21.43

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	1210	Mean	7651
Maximum	46000	Median	7210
SD	3409	CV	0.446
k hat (MLE)	6.172	k star (bias corrected MLE)	6.145
Theta hat (MLE)	1240	Theta star (bias corrected MLE)	1245
nu hat (MLE)	8258	nu star (bias corrected)	8222
MLE Mean (bias corrected)	7651	MLE Sd (bias corrected)	3087
95% Percentile of Chisquare (2kstar)	21.42	90% Percentile	11777
95% Percentile	13332	99% Percentile	16589

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	13736	13858	95% Approx. Gamma UPL	13298	13395
95% Gamma USL	25139	26474			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	7652	SD (KM)	3407
Variance (KM)	11607710	SE of Mean (KM)	131.9
k hat (KM)	5.044	k star (KM)	5.022
nu hat (KM)	6749	nu star (KM)	6720
theta hat (KM)	1517	theta star (KM)	1524
80% gamma percentile (KM)	10280	90% gamma percentile (KM)	12222
95% gamma percentile (KM)	13992	99% gamma percentile (KM)	17732

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	13734	13856	95% Approx. Gamma UPL	13296	13393
95% KM Gamma Percentile	13281	13377	95% Gamma USL	25133	26469

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.984	**Shapiro Wilk GOF Test**	

10% Shapiro Wilk P Value	0.247	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0583	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0317	Data Not Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	7652	Mean in Log Scale	8.86
SD in Original Scale	3409	SD in Log Scale	0.411
95% UTL95% Coverage	14430	95% BCA UTL95% Coverage	14000
95% Bootstrap (%) UTL95% Coverage	14000	95% UPL (t)	13863
90% Percentile (z)	11923	95% Percentile (z)	13843
99% Percentile (z)	18317	95% USL	33194

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	8.859	95% KM UTL (Lognormal)95% Coverage	14432
KM SD of Logged Data	0.411	95% KM UPL (Lognormal)	13865
95% KM Percentile Lognormal (z)	13845	95% KM USL (Lognormal)	33211

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	7647	Mean in Log Scale	8.858
SD in Original Scale	3413	SD in Log Scale	0.413
95% UTL95% Coverage	14454	95% UPL (t)	13884
90% Percentile (z)	11934	95% Percentile (z)	13863
99% Percentile (z)	18365	95% USL	33358

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	645	95% UTL with95% Coverage	14300
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
Approximate Sample Size needed to achieve specified CC	647	95% UPL	13450
95% USL	46000	95% KM Chebyshev UPL	22513

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_antimony)

General Statistics

Total Number of Observations	579	Number of Missing Observations	0
Number of Distinct Observations	294		
Number of Detects	429	Number of Non-Detects	150
Number of Distinct Detects	240	Number of Distinct Non-Detects	91
Minimum Detect	0.016	Minimum Non-Detect	0.006

Maximum Detect	2.2	Maximum Non-Detect	1.5
Variance Detected	0.0951	Percent Non-Detects	25.91%
Mean Detected	0.268	SD Detected	0.308
Mean of Detected Logged Data	-1.641	SD of Detected Logged Data	0.728

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.754	d2max (for USL)	3.735

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.554	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.307	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.0499	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.22	KM SD	0.283
95% UTL95% Coverage	0.717	95% KM UPL (t)	0.687
90% KM Percentile (z)	0.583	95% KM Percentile (z)	0.686
99% KM Percentile (z)	0.879	95% KM USL	1.278

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.247	SD	0.287
95% UTL95% Coverage	0.75	95% UPL (t)	0.72
90% Percentile (z)	0.615	95% Percentile (z)	0.719
99% Percentile (z)	0.915	95% USL	1.319

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	22.93	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.77	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.191	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0445	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.693	k star (bias corrected MLE)	1.683
Theta hat (MLE)	0.158	Theta star (bias corrected MLE)	0.159
nu hat (MLE)	1453	nu star (bias corrected)	1444
MLE Mean (bias corrected)	0.268		
MLE Sd (bias corrected)	0.207	95% Percentile of Chisquare (2kstar)	8.439

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.215

Maximum	2.2	Median	0.163
SD	0.284	CV	1.323
k hat (MLE)	0.921	k star (bias corrected MLE)	0.918
Theta hat (MLE)	0.233	Theta star (bias corrected MLE)	0.234
nu hat (MLE)	1067	nu star (bias corrected)	1063
MLE Mean (bias corrected)	0.215	MLE Sd (bias corrected)	0.224
95% Percentile of Chisquare (2kstar)	5.668	90% Percentile	0.505
95% Percentile	0.663	99% Percentile	1.032

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.679	0.718	95% Approx. Gamma UPL	0.631	0.661
95% Gamma USL	2.086	2.619			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.22	SD (KM)	0.283
Variance (KM)	0.0802	SE of Mean (KM)	0.0119
k hat (KM)	0.603	k star (KM)	0.601
nu hat (KM)	697.8	nu star (KM)	695.5
theta hat (KM)	0.365	theta star (KM)	0.366
80% gamma percentile (KM)	0.362	90% gamma percentile (KM)	0.572
95% gamma percentile (KM)	0.791	99% gamma percentile (KM)	1.321

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.684	0.725	95% Approx. Gamma UPL	0.637	0.669
95% KM Gamma Percentile	0.635	0.667	95% Gamma USL	2.061	2.59

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.934	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.123	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0395	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.222	Mean in Log Scale	-1.895
SD in Original Scale	0.279	SD in Log Scale	0.825
95% UTL95% Coverage	0.639	95% BCA UTL95% Coverage	0.872
95% Bootstrap (%) UTL95% Coverage	0.872	95% UPL (t)	0.586
90% Percentile (z)	0.433	95% Percentile (z)	0.584
99% Percentile (z)	1.024	95% USL	3.274

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.119	95% KM UTL (Lognormal)95% Coverage	1.135
KM SD of Logged Data	1.28	95% KM UPL (Lognormal)	0.993
95% KM Percentile Lognormal (z)	0.988	95% KM USL (Lognormal)	14.34

Table C2-3
ProUCL Sediment BG Output Table
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C2

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.247	Mean in Log Scale	-1.879
SD in Original Scale	0.287	SD in Log Scale	1.056
95% UTL95% Coverage	0.975	95% UPL (t)	0.872
90% Percentile (z)	0.592	95% Percentile (z)	0.869
99% Percentile (z)	1.785	95% USL	7.901

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	558	95% UTL with95% Coverage	1.2
Approx, f used to compute achieved CC	1.335	Approximate Actual Confidence Coefficient achieved by UTL	0.927
Approximate Sample Size needed to achieve specified CC	577	95% UPL	1
95% USL	2.2	95% KM Chebyshev UPL	1.455

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_arsenic)

General Statistics

Total Number of Observations	669	Number of Missing Observations	0
Number of Distinct Observations	411		
Number of Detects	638	Number of Non-Detects	31
Number of Distinct Detects	409	Number of Distinct Non-Detects	26
Minimum Detect	0.2	Minimum Non-Detect	0.73
Maximum Detect	45	Maximum Non-Detect	9.6
Variance Detected	15.55	Percent Non-Detects	4.634%
Mean Detected	4.532	SD Detected	3.943
Mean of Detected Logged Data	1.228	SD of Detected Logged Data	0.768

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.736	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.153	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.0409	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	4.399	KM SD	3.904
95% UTL95% Coverage	11.21	95% KM UPL (t)	10.83

90% KM Percentile (z)	9.402	95% KM Percentile (z)	10.82
99% KM Percentile (z)	13.48	95% KM USL	19.13

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	4.394	SD	3.909
95% UTL95% Coverage	11.22	95% UPL (t)	10.84
90% Percentile (z)	9.403	95% Percentile (z)	10.82
99% Percentile (z)	13.49	95% USL	19.14

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.736	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0759	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0377	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.912	k star (bias corrected MLE)	1.904
Theta hat (MLE)	2.37	Theta star (bias corrected MLE)	2.38
nu hat (MLE)	2440	nu star (bias corrected)	2430
MLE Mean (bias corrected)	4.532		
MLE Sd (bias corrected)	3.285	95% Percentile of Chisquare (2kstar)	9.175

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	4.38
Maximum	45	Median	3.52
SD	3.918	CV	0.895
k hat (MLE)	1.625	k star (bias corrected MLE)	1.618
Theta hat (MLE)	2.696	Theta star (bias corrected MLE)	2.706
nu hat (MLE)	2174	nu star (bias corrected)	2165
MLE Mean (bias corrected)	4.38	MLE Sd (bias corrected)	3.443
95% Percentile of Chisquare (2kstar)	8.221	90% Percentile	8.96
95% Percentile	11.12	99% Percentile	15.99

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	11.49	11.97	95% Approx. Gamma UPL	10.87	11.27
95% Gamma USL	29.9	35.28			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	4.399	SD (KM)	3.904
Variance (KM)	15.24	SE of Mean (KM)	0.151
k hat (KM)	1.269	k star (KM)	1.265

nu hat (KM)	1698	nu star (KM)	1692
theta hat (KM)	3.465	theta star (KM)	3.478
80% gamma percentile (KM)	6.929	90% gamma percentile (KM)	9.558
95% gamma percentile (KM)	12.14	99% gamma percentile (KM)	18.04

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	11.16	11.42	95% Approx. Gamma UPL	10.59	10.78
95% KM Gamma Percentile	10.57	10.76	95% Gamma USL	28.31	32.17

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.979	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0.0154	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.072	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0324	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	4.398	Mean in Log Scale	1.189
SD in Original Scale	3.902	SD in Log Scale	0.777
95% UTL95% Coverage	12.75	95% BCA UTL95% Coverage	11
95% Bootstrap (%) UTL95% Coverage	11.06	95% UPL (t)	11.82
90% Percentile (z)	8.886	95% Percentile (z)	11.79
99% Percentile (z)	20.01	95% USL	61.6

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.184	95% KM UTL (Lognormal)95% Coverage	12.92
KM SD of Logged Data	0.787	95% KM UPL (Lognormal)	11.96
95% KM Percentile Lognormal (z)	11.93	95% KM USL (Lognormal)	63.71

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	4.394	Mean in Log Scale	1.18
SD in Original Scale	3.909	SD in Log Scale	0.794
95% UTL95% Coverage	13.01	95% UPL (t)	12.04
90% Percentile (z)	9.002	95% Percentile (z)	12.01
99% Percentile (z)	20.63	95% USL	65.02

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	645	95% UTL with95% Coverage	11.2
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
Approximate Sample Size needed to achieve specified CC	647	95% UPL	10.25
95% USL	45	95% KM Chebyshev UPL	21.43

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_barium)

General Statistics

Total Number of Observations	669	Number of Distinct Observations	461
Minimum	9.7	First Quartile	50.4
Second Largest	319	Median	65
Maximum	660	Third Quartile	90.3
Mean	77.08	SD	46.6
Coefficient of Variation	0.605	Skewness	4.248
Mean of logged Data	4.22	SD of logged Data	0.484

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test

Shapiro Wilk Test Statistic	0.758	**Normal GOF Test**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.151	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	158.4	90% Percentile (z)	136.8
	95% UPL (t)	153.9	95% Percentile (z)	153.7
	95% USL	252.9	99% Percentile (z)	185.5

Gamma GOF Test

A-D Test Statistic	8.306	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0864	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0366	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.17	k star (bias corrected MLE)	4.152
Theta hat (MLE)	18.49	Theta star (bias corrected MLE)	18.56
nu hat (MLE)	5579	nu star (bias corrected)	5555
MLE Mean (bias corrected)	77.08	MLE Sd (bias corrected)	37.83

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	147	90% Percentile	127.8
95% Hawkins Wixley (HW) Approx. Gamma UPL	147.4	95% Percentile	147.9
95% WH Approx. Gamma UTL with 95% Coverage	152.7	99% Percentile	191
95% HW Approx. Gamma UTL with 95% Coverage	153.4		

95% WH USL	307.1	95% HW USL	325.1

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.985	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk P Value	0.47	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.05	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.0316	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	158.4	90% Percentile (z)	126.5
	95% UPL (t)	151.1	95% Percentile (z)	150.8
	95% USL	422.3	99% Percentile (z)	209.7

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		646	95% UTL with 95% Coverage	169
Approx, f used to compute achieved CC		1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
			Approximate Sample Size needed to achieve specified CC	647
95% Percentile Bootstrap UTL with	95% Coverage	165.1	95% BCA Bootstrap UTL with 95% Coverage	165.1
	95% UPL	159	90% Percentile	129
	90% Chebyshev UPL	217	95% Percentile	158.2
	95% Chebyshev UPL	280.4	99% Percentile	219.6
	95% USL	660		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_beryllium)

General Statistics

Total Number of Observations	665	Number of Distinct Observations	152
Minimum	0.05	First Quartile	0.21
Second Largest	1.5	Median	0.29
Maximum	2.4	Third Quartile	0.43
Mean	0.36	SD	0.244
Coefficient of Variation	0.678	Skewness	2.518
Mean of logged Data	-1.192	SD of logged Data	0.566

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.771

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Normal GOF Test**

1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.187	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.0401	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.786	90% Percentile (z)	0.673
	95% UPL (t)	0.762	95% Percentile (z)	0.762
	95% USL	1.281	99% Percentile (z)	0.928

Gamma GOF Test

A-D Test Statistic	9.848	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.761	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.115	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0368	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.093	k star (bias corrected MLE)	3.08
Theta hat (MLE)	0.116	Theta star (bias corrected MLE)	0.117
nu hat (MLE)	4114	nu star (bias corrected)	4096
MLE Mean (bias corrected)	0.36	MLE Sd (bias corrected)	0.205

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.744	90% Percentile	0.635
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.748	95% Percentile	0.75
95% WH Approx. Gamma UTL with 95% Coverage	0.777	99% Percentile	0.999
95% HW Approx. Gamma UTL with 95% Coverage	0.783		
95% WH USL	1.693	95% HW USL	1.821

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.98	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk P Value	0.0196	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0732	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.0317	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.815	90% Percentile (z)	0.627
	95% UPL (t)	0.772	95% Percentile (z)	0.77
	95% USL	2.563	99% Percentile (z)	1.132

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	642	95% UTL with 95% Coverage	0.98
Approx, f used to compute achieved CC	1.349	Approximate Actual Confidence Coefficient achieved by UTL	0.945
		Approximate Sample Size needed to achieve specified CC	647

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95% Percentile Bootstrap UTL with	95% Coverage	0.98	95% BCA Bootstrap UTL with	95% Coverage	0.98
	95% UPL	0.814		90% Percentile	0.66
	90% Chebyshev UPL	1.093		95% Percentile	0.796
	95% Chebyshev UPL	1.425		99% Percentile	1.3
	95% USL	2.4			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_cadmium)

General Statistics

Total Number of Observations	667	Number of Missing Observations	0
Number of Distinct Observations	293		
Number of Detects	553	Number of Non-Detects	114
Number of Distinct Detects	277	Number of Distinct Non-Detects	52
Minimum Detect	0.025	Minimum Non-Detect	0.015
Maximum Detect	1.64	Maximum Non-Detect	0.62
Variance Detected	0.0321	Percent Non-Detects	17.09%
Mean Detected	0.22	SD Detected	0.179
Mean of Detected Logged Data	-1.739	SD of Detected Logged Data	0.641

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.772

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.744	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.191	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.044	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.195	KM SD	0.175
95% UTL95% Coverage	0.5	95% KM UPL (t)	0.483
90% KM Percentile (z)	0.419	95% KM Percentile (z)	0.482
99% KM Percentile (z)	0.601	95% KM USL	0.854

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.196	SD	0.175
95% UTL95% Coverage	0.502	95% UPL (t)	0.485
90% Percentile (z)	0.421	95% Percentile (z)	0.484
99% Percentile (z)	0.604	95% USL	0.857

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	13.48	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.765	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.122	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0396	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.358	k star (bias corrected MLE)	2.347
Theta hat (MLE)	0.0935	Theta star (bias corrected MLE)	0.0939
nu hat (MLE)	2608	nu star (bias corrected)	2596
MLE Mean (bias corrected)	0.22		
MLE Sd (bias corrected)	0.144	95% Percentile of Chisquare (2kstar)	10.59

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.189
Maximum	1.64	Median	0.14
SD	0.179	CV	0.944
k hat (MLE)	1.235	k star (bias corrected MLE)	1.23
Theta hat (MLE)	0.153	Theta star (bias corrected MLE)	0.154
nu hat (MLE)	1647	nu star (bias corrected)	1641
MLE Mean (bias corrected)	0.189	MLE Sd (bias corrected)	0.171
95% Percentile of Chisquare (2kstar)	6.856	90% Percentile	0.414
95% Percentile	0.527	99% Percentile	0.787

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.549	0.582	95% Approx. Gamma UPL	0.516	0.544
95% Gamma USL	1.564	1.939			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.195	SD (KM)	0.175
Variance (KM)	0.0305	SE of Mean (KM)	0.00683
k hat (KM)	1.246	k star (KM)	1.242
nu hat (KM)	1663	nu star (KM)	1656
theta hat (KM)	0.156	theta star (KM)	0.157
80% gamma percentile (KM)	0.308	90% gamma percentile (KM)	0.426
95% gamma percentile (KM)	0.541	99% gamma percentile (KM)	0.807

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.496	0.505	95% Approx. Gamma UPL	0.47	0.476
95% KM Gamma Percentile	0.469	0.475	95% Gamma USL	1.261	1.422

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Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.967	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	6.8971E-9	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0794	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0348	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.194	Mean in Log Scale	-1.923
SD in Original Scale	0.174	SD in Log Scale	0.739
95% UTL95% Coverage	0.531	95% BCA UTL95% Coverage	0.58
95% Bootstrap (%) UTL95% Coverage	0.594	95% UPL (t)	0.494
90% Percentile (z)	0.377	95% Percentile (z)	0.493
99% Percentile (z)	0.815	95% USL	2.371

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.936	95% KM UTL (Lognormal)95% Coverage	0.562
KM SD of Logged Data	0.779	95% KM UPL (Lognormal)	0.521
95% KM Percentile Lognormal (z)	0.519	95% KM USL (Lognormal)	2.721

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.196	Mean in Log Scale	-1.945
SD in Original Scale	0.175	SD in Log Scale	0.808
95% UTL95% Coverage	0.587	95% UPL (t)	0.542
90% Percentile (z)	0.403	95% Percentile (z)	0.54
99% Percentile (z)	0.937	95% USL	3.016

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	643	95% UTL with95% Coverage	0.615
Approx, f used to compute achieved CC	1.354	Approximate Actual Confidence Coefficient achieved by UTL	0.947
Approximate Sample Size needed to achieve specified CC	647	95% UPL	0.57
95% USL	1.64	95% KM Chebyshev UPL	0.957

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_calcium)

General Statistics

Total Number of Observations	669	Number of Missing Observations	0
Number of Distinct Observations	448		
Number of Detects	667	Number of Non-Detects	2

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Number of Distinct Detects	448	Number of Distinct Non-Detects	2
Minimum Detect	667	Minimum Non-Detect	3300
Maximum Detect	110000	Maximum Non-Detect	3400
Variance Detected	71351961	Percent Non-Detects	0.299%
Mean Detected	6938	SD Detected	8447
Mean of Detected Logged Data	8.465	SD of Detected Logged Data	0.816

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.586	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.245	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	6924	KM SD	8432
95% UTL95% Coverage	21646	95% KM UPL (t)	20823
90% KM Percentile (z)	17730	95% KM Percentile (z)	20793
99% KM Percentile (z)	26540	95% KM USL	38738

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	6922	SD	8439
95% UTL95% Coverage	21657	95% UPL (t)	20833
90% Percentile (z)	17738	95% Percentile (z)	20804
99% Percentile (z)	26555	95% USL	38764

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	18.11	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.773	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.126	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0372	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.462	k star (bias corrected MLE)	1.456
Theta hat (MLE)	4746	Theta star (bias corrected MLE)	4764
nu hat (MLE)	1950	nu star (bias corrected)	1943
MLE Mean (bias corrected)	6938		
MLE Sd (bias corrected)	5749	95% Percentile of Chisquare (2kstar)	7.663

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

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For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	667	Mean	6920
Maximum	110000	Median	4120
SD	8441	CV	1.22
k hat (MLE)	1.453	k star (bias corrected MLE)	1.447
Theta hat (MLE)	4763	Theta star (bias corrected MLE)	4781
nu hat (MLE)	1944	nu star (bias corrected)	1937
MLE Mean (bias corrected)	6920	MLE Sd (bias corrected)	5752
95% Percentile of Chisquare (2kstar)	7.632	90% Percentile	14546
95% Percentile	18242	99% Percentile	26610

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	18681	18748	95% Approx. Gamma UPL	17629	17618
95% Gamma USL	50997	56989			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	6924	SD (KM)	8432
Variance (KM)	71097753	SE of Mean (KM)	326.2
k hat (KM)	0.674	k star (KM)	0.672
nu hat (KM)	902.2	nu star (KM)	899.5
theta hat (KM)	10268	theta star (KM)	10299
80% gamma percentile (KM)	11395	90% gamma percentile (KM)	17546
95% gamma percentile (KM)	23914	99% gamma percentile (KM)	39166

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	18643	18700	95% Approx. Gamma UPL	17595	17576
95% KM Gamma Percentile	17558	17536	95% Gamma USL	50784	56670

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.948	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0914	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0317	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	6925	Mean in Log Scale	8.463
SD in Original Scale	8438	SD in Log Scale	0.816
95% UTL95% Coverage	19677	95% BCA UTL95% Coverage	18900
95% Bootstrap (%) UTL95% Coverage	18900	95% UPL (t)	18172
90% Percentile (z)	13473	95% Percentile (z)	18120
99% Percentile (z)	31588	95% USL	102776

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	8.463	95% KM UTL (Lognormal)95% Coverage	19663
KM SD of Logged Data	0.815	95% KM UPL (Lognormal)	18160

95% KM Percentile Lognormal (z)	18108	95% KM USL (Lognormal)	102661

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	6922	Mean in Log Scale	8.462
SD in Original Scale	8439	SD in Log Scale	0.817
95% UTL95% Coverage	19695	95% UPL (t)	18187
90% Percentile (z)	13479	95% Percentile (z)	18135
99% Percentile (z)	31640	95% USL	103122

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	645	95% UTL with95% Coverage	19400
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
Approximate Sample Size needed to achieve specified CC	647	95% UPL	17400
95% USL	110000	95% KM Chebyshev UPL	43706

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_chromium)

General Statistics

Total Number of Observations	669	Number of Distinct Observations	374
Minimum	1.6	First Quartile	8.43
Second Largest	52	Median	11.9
Maximum	52.8	Third Quartile	16.9
Mean	13.68	SD	7.594
Coefficient of Variation	0.555	Skewness	1.584
Mean of logged Data	2.479	SD of logged Data	0.524

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test

Shapiro Wilk Test Statistic	0.87	**Normal GOF Test**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.122	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	26.93	90% Percentile (z)	23.41
	95% UPL (t)	26.19	95% Percentile (z)	26.17

95% USL	42.33	99% Percentile (z)	31.34

Gamma GOF Test

A-D Test Statistic	4.697	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0716	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0367	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.83	k star (bias corrected MLE)	3.814
Theta hat (MLE)	3.571	Theta star (bias corrected MLE)	3.586
nu hat (MLE)	5124	nu star (bias corrected)	5103
MLE Mean (bias corrected)	13.68	MLE Sd (bias corrected)	7.003

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	26.76	90% Percentile	23.06
95% Hawkins Wixley (HW) Approx. Gamma UPL	27.02	95% Percentile	26.85
95% WH Approx. Gamma UTL with 95% Coverage	27.84	99% Percentile	34.95
95% HW Approx. Gamma UTL with 95% Coverage	28.18		
95% WH USL	57.31	95% HW USL	61.68

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.982	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk P Value	0.0988	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.045	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.0316	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	29.81	90% Percentile (z)	23.37
95% UPL (t)	28.32	95% Percentile (z)	28.27
95% USL	86.26	99% Percentile (z)	40.41

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	646	95% UTL with 95% Coverage	32
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
		Approximate Sample Size needed to achieve specified CC	647
95% Percentile Bootstrap UTL with 95% Coverage	31.6	95% BCA Bootstrap UTL with 95% Coverage	31.6
95% UPL	29.95	90% Percentile	23.64
90% Chebyshev UPL	36.47	95% Percentile	29.9
95% Chebyshev UPL	46.8	99% Percentile	39.22
95% USL	52.8		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers

and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_cobalt)

General Statistics

Total Number of Observations	669	Number of Distinct Observations	379
Minimum	0.53	First Quartile	3.95
Second Largest	20.9	Median	5
Maximum	52	Third Quartile	6.61
Mean	5.64	SD	3.169
Coefficient of Variation	0.562	Skewness	5.603
Mean of logged Data	1.623	SD of logged Data	0.458

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test

Shapiro Wilk Test Statistic	0.742	**Normal GOF Test**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.135	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	11.17	90% Percentile (z)	9.701
	95% UPL (t)	10.86	95% Percentile (z)	10.85
	95% USL	17.6	99% Percentile (z)	13.01

Gamma GOF Test

A-D Test Statistic	5.776	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0606	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0366	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.825	k star (bias corrected MLE)	4.805
Theta hat (MLE)	1.169	Theta star (bias corrected MLE)	1.174
nu hat (MLE)	6456	nu star (bias corrected)	6429
MLE Mean (bias corrected)	5.64	MLE Sd (bias corrected)	2.573

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	10.36	90% Percentile	9.085
95% Hawkins Wixley (HW) Approx. Gamma UPL	10.42	95% Percentile	10.43
95% WH Approx. Gamma UTL with 95% Coverage	10.74	99% Percentile	13.27
95% HW Approx. Gamma UTL with 95% Coverage	10.81		
95% WH USL	20.81	95% HW USL	21.99

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Lognormal GOF Test

Shapiro Wilk Test Statistic	0.983	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk P Value	0.161	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.059	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.0316	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	11.27	90% Percentile (z)	9.11
	95% UPL (t)	10.78	95% Percentile (z)	10.76
	95% USL	28.5	99% Percentile (z)	14.7

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	646	95% UTL with	95% Coverage	12
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL		0.949
		Approximate Sample Size needed to achieve specified CC		647
95% Percentile Bootstrap UTL with	95% Coverage 11.7	95% BCA Bootstrap UTL with	95% Coverage	11.7
95% UPL	10.95		90% Percentile	8.552
90% Chebyshev UPL	15.15		95% Percentile	10.86
95% Chebyshev UPL	19.46		99% Percentile	14.73
95% USL	52			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_copper)

General Statistics

Total Number of Observations	669	Number of Missing Observations	0
Number of Distinct Observations	256		
Number of Detects	664	Number of Non-Detects	5
Number of Distinct Detects	256	Number of Distinct Non-Detects	5
Minimum Detect	0.8	Minimum Non-Detect	6
Maximum Detect	1900	Maximum Non-Detect	8.7
Variance Detected	5421	Percent Non-Detects	0.747%
Mean Detected	15.84	SD Detected	73.63
Mean of Detected Logged Data	2.438	SD of Detected Logged Data	0.551

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test on Detects Only

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Shapiro Wilk Test Statistic	0.0814	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.426	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.0401	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	15.76	KM SD	73.3
95% UTL95% Coverage	143.7	95% KM UPL (t)	136.6
90% KM Percentile (z)	109.7	95% KM Percentile (z)	136.3
99% KM Percentile (z)	186.3	95% KM USL	292.3

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	15.75	SD	73.36
95% UTL95% Coverage	143.8	95% UPL (t)	136.7
90% Percentile (z)	109.8	95% Percentile (z)	136.4
99% Percentile (z)	186.4	95% USL	292.5

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.506E+28	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.77	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.18	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0372	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.69	k star (bias corrected MLE)	1.683
Theta hat (MLE)	9.371	Theta star (bias corrected MLE)	9.408
nu hat (MLE)	2244	nu star (bias corrected)	2236
MLE Mean (bias corrected)	15.84		
MLE Sd (bias corrected)	12.21	95% Percentile of Chisquare (2kstar)	8.442

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	15.72
Maximum	1900	Median	11.2
SD	73.37	CV	4.667
k hat (MLE)	1.499	k star (bias corrected MLE)	1.493
Theta hat (MLE)	10.49	Theta star (bias corrected MLE)	10.53
nu hat (MLE)	2005	nu star (bias corrected)	1998
MLE Mean (bias corrected)	15.72	MLE Sd (bias corrected)	12.86
95% Percentile of Chisquare (2kstar)	7.791	90% Percentile	32.79
95% Percentile	41.01	99% Percentile	59.57

The following statistics are computed using Gamma ROS Statistics on Imputed Data

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Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	35.92	34.37	95% Approx. Gamma UPL	34.09	32.58
95% Gamma USL	90.01	90.93			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	15.76	SD (KM)	73.3
Variance (KM)	5373	SE of Mean (KM)	2.836
k hat (KM)	0.0462	k star (KM)	0.047
nu hat (KM)	61.86	nu star (KM)	62.91
theta hat (KM)	340.9	theta star (KM)	335.2
80% gamma percentile (KM)	1.706	90% gamma percentile (KM)	22.12
95% gamma percentile (KM)	81.86	99% gamma percentile (KM)	351.1

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	34.79	32.28	95% Approx. Gamma UPL	33.09	30.71
95% KM Gamma Percentile	33.03	30.66	95% Gamma USL	84.78	80.59

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.959	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0586	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0318	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	15.76	Mean in Log Scale	2.433
SD in Original Scale	73.36	SD in Log Scale	0.553
95% UTL95% Coverage	29.91	95% BCA UTL95% Coverage	28.36
95% Bootstrap (%) UTL95% Coverage	28.44	95% UPL (t)	28.34
90% Percentile (z)	23.14	95% Percentile (z)	28.28
99% Percentile (z)	41.22	95% USL	91.73

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.433	95% KM UTL (Lognormal)95% Coverage	29.94
KM SD of Logged Data	0.554	95% KM UPL (Lognormal)	28.36
95% KM Percentile Lognormal (z)	28.31	95% KM USL (Lognormal)	91.97

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	15.75	Mean in Log Scale	2.43
SD in Original Scale	73.36	SD in Log Scale	0.558
95% UTL95% Coverage	30.07	95% UPL (t)	28.48
90% Percentile (z)	23.21	95% Percentile (z)	28.42
99% Percentile (z)	41.57	95% USL	93.14

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

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Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	645	95% UTL with95% Coverage	28.8
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
Approximate Sample Size needed to achieve specified CC	647	95% UPL	25.1
95% USL	1900	95% KM Chebyshev UPL	335.5

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_iron)

General Statistics

Total Number of Observations	669	Number of Distinct Observations	252
Minimum	2040	First Quartile	12400
Second Largest	50000	Median	14600
Maximum	110000	Third Quartile	17600
Mean	15338	SD	6404
Coefficient of Variation	0.418	Skewness	5.544
Mean of logged Data	9.572	SD of logged Data	0.367

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test

Shapiro Wilk Test Statistic	0.772	**Normal GOF Test**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.116	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	26519	90% Percentile (z)	23545
	95% UPL (t)	25895	95% Percentile (z)	25872
	95% USL	39502	99% Percentile (z)	30237

Gamma GOF Test

A-D Test Statistic	7.141	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.755	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0786	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0365	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	7.735	k star (bias corrected MLE)	7.702

Theta hat (MLE)	1983	Theta star (bias corrected MLE)	1991
nu hat (MLE)	10350	nu star (bias corrected)	10305
MLE Mean (bias corrected)	15338	MLE Sd (bias corrected)	5527

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	25326	90% Percentile	22709
95% Hawkins Wixley (HW) Approx. Gamma UPL	25474	95% Percentile	25413
95% WH Approx. Gamma UTL with 95% Coverage	26081	99% Percentile	31020
95% HW Approx. Gamma UTL with 95% Coverage	26267		
95% WH USL	45348	95% HW USL	47329

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.96	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk P Value	0	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.0966	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.0316	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	27237	90% Percentile (z)	22972
95% UPL (t)	26280	95% Percentile (z)	26246
95% USL	57282	99% Percentile (z)	33698

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	646	95% UTL with 95% Coverage	25900
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
		Approximate Sample Size needed to achieve specified CC	647
95% Percentile Bootstrap UTL with 95% Coverage	25480	95% BCA Bootstrap UTL with 95% Coverage	25600
95% UPL	24800	90% Percentile	20820
90% Chebyshev UPL	34565	95% Percentile	24760
95% Chebyshev UPL	43275	99% Percentile	34424
95% USL	110000		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_lead)

General Statistics

Total Number of Observations	669	Number of Missing Observations	0
Number of Distinct Observations	408		
Number of Detects	666	Number of Non-Detects	3
Number of Distinct Detects	406	Number of Distinct Non-Detects	3

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Minimum Detect	1.2	Minimum Non-Detect	1.1
Maximum Detect	102	Maximum Non-Detect	7.9
Variance Detected	79.67	Percent Non-Detects	0.448%
Mean Detected	9.454	SD Detected	8.926
Mean of Detected Logged Data	2.046	SD of Detected Logged Data	0.57

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.546	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.229	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.0401	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	9.423	KM SD	8.912
95% UTL95% Coverage	24.98	95% KM UPL (t)	24.11
90% KM Percentile (z)	20.84	95% KM Percentile (z)	24.08
99% KM Percentile (z)	30.16	95% KM USL	43.05

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	9.419	SD	8.921
95% UTL95% Coverage	25	95% UPL (t)	24.12
90% Percentile (z)	20.85	95% Percentile (z)	24.09
99% Percentile (z)	30.17	95% USL	43.08

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	21.12	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.763	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.137	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0369	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.652	k star (bias corrected MLE)	2.641
Theta hat (MLE)	3.564	Theta star (bias corrected MLE)	3.579
nu hat (MLE)	3533	nu star (bias corrected)	3518
MLE Mean (bias corrected)	9.454		
MLE Sd (bias corrected)	5.817	95% Percentile of Chisquare (2kstar)	11.51

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	9.418
Maximum	102	Median	7.15
SD	8.923	CV	0.947
k hat (MLE)	2.457	k star (bias corrected MLE)	2.447
Theta hat (MLE)	3.834	Theta star (bias corrected MLE)	3.85
nu hat (MLE)	3287	nu star (bias corrected)	3274
MLE Mean (bias corrected)	9.418	MLE Sd (bias corrected)	6.021
95% Percentile of Chisquare (2kstar)	10.9	90% Percentile	17.48
95% Percentile	20.99	99% Percentile	28.67

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	21.36	21.43	95% Approx. Gamma UPL	20.38	20.4
95% Gamma USL	49.09	52.97			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	9.423	SD (KM)	8.912
Variance (KM)	79.42	SE of Mean (KM)	0.345
k hat (KM)	1.118	k star (KM)	1.114
nu hat (KM)	1496	nu star (KM)	1490
theta hat (KM)	8.429	theta star (KM)	8.459
80% gamma percentile (KM)	15.03	90% gamma percentile (KM)	21.13
95% gamma percentile (KM)	27.18	99% gamma percentile (KM)	41.12

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	21.08	20.94	95% Approx. Gamma UPL	20.14	19.96
95% KM Gamma Percentile	20.1	19.93	95% Gamma USL	47.95	50.7

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.953	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0801	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0317	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	9.424	Mean in Log Scale	2.041
SD in Original Scale	8.918	SD in Log Scale	0.576
95% UTL95% Coverage	21.03	95% BCA UTL95% Coverage	24.5
95% Bootstrap (%) UTL95% Coverage	24.5	95% UPL (t)	19.88
90% Percentile (z)	16.1	95% Percentile (z)	19.84
99% Percentile (z)	29.37	95% USL	67.56

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.04	95% KM UTL (Lognormal)95% Coverage	21.09
KM SD of Logged Data	0.578	95% KM UPL (Lognormal)	19.94
95% KM Percentile Lognormal (z)	19.9	95% KM USL (Lognormal)	68.05

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Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	9.419	Mean in Log Scale	2.038
SD in Original Scale	8.921	SD in Log Scale	0.585
95% UTL95% Coverage	21.31	95% UPL (t)	20.13
90% Percentile (z)	16.24	95% Percentile (z)	20.09
99% Percentile (z)	29.93	95% USL	69.77

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	645	95% UTL with95% Coverage	24.9
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
Approximate Sample Size needed to achieve specified CC	647	95% UPL	22.3
95% USL	102	95% KM Chebyshev UPL	48.3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_magnesium)

General Statistics

Total Number of Observations	669	Number of Missing Observations	0
Number of Distinct Observations	423		
Number of Detects	667	Number of Non-Detects	2
Number of Distinct Detects	422	Number of Distinct Non-Detects	2
Minimum Detect	569	Minimum Non-Detect	4100
Maximum Detect	26000	Maximum Non-Detect	4300
Variance Detected	4250748	Percent Non-Detects	0.299%
Mean Detected	4715	SD Detected	2062
Mean of Detected Logged Data	8.37	SD of Detected Logged Data	0.431

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.899	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.062	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	4710	KM SD	2059

95% UTL95% Coverage	8306	95% KM UPL (t)	8105
90% KM Percentile (z)	7350	95% KM Percentile (z)	8098
99% KM Percentile (z)	9501	95% KM USL	12481

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	4708	SD	2064
95% UTL95% Coverage	8310	95% UPL (t)	8109
90% Percentile (z)	7352	95% Percentile (z)	8102
99% Percentile (z)	9508	95% USL	12493

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.665	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.756	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0259	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0366	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.83	k star (bias corrected MLE)	5.805
Theta hat (MLE)	808.8	Theta star (bias corrected MLE)	812.4
nu hat (MLE)	7777	nu star (bias corrected)	7743
MLE Mean (bias corrected)	4715		
MLE Sd (bias corrected)	1957	95% Percentile of Chisquare (2kstar)	20.5

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	569	Mean	4711
Maximum	26000	Median	4410
SD	2060	CV	0.437
k hat (MLE)	5.833	k star (bias corrected MLE)	5.808
Theta hat (MLE)	807.6	Theta star (bias corrected MLE)	811.1
nu hat (MLE)	7805	nu star (bias corrected)	7771
MLE Mean (bias corrected)	4711	MLE Sd (bias corrected)	1955
95% Percentile of Chisquare (2kstar)	20.51	90% Percentile	7325
95% Percentile	8317	99% Percentile	10401

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	8582	8686	95% Approx. Gamma UPL	8302	8387
95% Gamma USL	15915	16886			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	4710	SD (KM)	2059
Variance (KM)	4241221	SE of Mean (KM)	79.7

k hat (KM)	5.232	k star (KM)	5.209
nu hat (KM)	7000	nu star (KM)	6970
theta hat (KM)	900.4	theta star (KM)	904.3
80% gamma percentile (KM)	6303	90% gamma percentile (KM)	7473
95% gamma percentile (KM)	8537	99% gamma percentile (KM)	10782

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	8581	8685	95% Approx. Gamma UPL	8301	8386
95% KM Gamma Percentile	8291	8376	95% Gamma USL	15913	16886

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.98	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0.0331	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0397	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0317	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	4711	Mean in Log Scale	8.369
SD in Original Scale	2060	SD in Log Scale	0.431
95% UTL95% Coverage	9153	95% BCA UTL95% Coverage	8034
95% Bootstrap (%) UTL95% Coverage	8034	95% UPL (t)	8776
90% Percentile (z)	7493	95% Percentile (z)	8763
99% Percentile (z)	11755	95% USL	21928

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	8.369	95% KM UTL (Lognormal)95% Coverage	9154
KM SD of Logged Data	0.431	95% KM UPL (Lognormal)	8777
95% KM Percentile Lognormal (z)	8764	95% KM USL (Lognormal)	21934

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	4708	Mean in Log Scale	8.368
SD in Original Scale	2064	SD in Log Scale	0.432
95% UTL95% Coverage	9166	95% UPL (t)	8787
90% Percentile (z)	7498	95% Percentile (z)	8774
99% Percentile (z)	11780	95% USL	22021

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	645	95% UTL with95% Coverage	8070
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
Approximate Sample Size needed to achieve specified CC	647	95% UPL	7905
95% USL	26000	95% KM Chebyshev UPL	13694

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Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_manganese)

General Statistics

Total Number of Observations	669	Number of Distinct Observations	334
Minimum	42.6	First Quartile	186
Second Largest	1130	Median	245
Maximum	2020	Third Quartile	313
Mean	270.6	SD	152.6
Coefficient of Variation	0.564	Skewness	3.877
Mean of logged Data	5.488	SD of logged Data	0.464

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test

Shapiro Wilk Test Statistic	0.765	**Normal GOF Test**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.149	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	537	90% Percentile (z)	466.1
	95% UPL (t)	522.1	95% Percentile (z)	521.6
	95% USL	846.3	99% Percentile (z)	625.5

Gamma GOF Test

A-D Test Statistic	6.635	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0794	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0366	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.607	k star (bias corrected MLE)	4.588
Theta hat (MLE)	58.73	Theta star (bias corrected MLE)	58.98
nu hat (MLE)	6165	nu star (bias corrected)	6138
MLE Mean (bias corrected)	270.6	MLE Sd (bias corrected)	126.3

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	503.3	90% Percentile	439.8
95% Hawkins Wixley (HW) Approx. Gamma UPL	505.3	95% Percentile	506.2
95% WH Approx. Gamma UTL with 95% Coverage	522	99% Percentile	647

95% HW Approx. Gamma UTL with	95% Coverage	525.1			
	95% WH USL	1024		95% HW USL	1082

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.982	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk P Value	0.0703	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.0527	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.0316	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	543.9		90% Percentile (z)	438.4
	95% UPL (t)	519.8		95% Percentile (z)	519
	95% USL	1394		99% Percentile (z)	712.1

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	646	95% UTL with	95% Coverage	598
	Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL		0.949
			Approximate Sample Size needed to achieve specified CC		647
95% Percentile Bootstrap UTL with	95% Coverage	594	95% BCA Bootstrap UTL with	95% Coverage	591.6
	95% UPL	518		90% Percentile	414.8
	90% Chebyshev UPL	728.7		95% Percentile	513.6
	95% Chebyshev UPL	936.2		99% Percentile	858.7
	95% USL	2020			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_mercury)

General Statistics

Total Number of Observations	667	Number of Missing Observations	0
Number of Distinct Observations	69		
Number of Detects	491	Number of Non-Detects	176
Number of Distinct Detects	62	Number of Distinct Non-Detects	27
Minimum Detect	8.0000E-4	Minimum Non-Detect	5.0000E-4
Maximum Detect	0.21	Maximum Non-Detect	0.13
Variance Detected	2.9909E-4	Percent Non-Detects	26.39%
Mean Detected	0.011	SD Detected	0.0173
Mean of Detected Logged Data	-4.984	SD of Detected Logged Data	0.874

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.772

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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.482	**Normal GOF Test on Detected Observations Only**
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.0467	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0095	KM SD	0.0155
95% UTL95% Coverage	0.0366	95% KM UPL (t)	0.0351
90% KM Percentile (z)	0.0294	95% KM Percentile (z)	0.035
99% KM Percentile (z)	0.0456	95% KM USL	0.0681

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0138	SD	0.0188
95% UTL95% Coverage	0.0467	95% UPL (t)	0.0448
90% Percentile (z)	0.0379	95% Percentile (z)	0.0448
99% Percentile (z)	0.0576	95% USL	0.0848

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	19.32	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.78	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.147	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0419	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.192	k star (bias corrected MLE)	1.186
Theta hat (MLE)	0.00923	Theta star (bias corrected MLE)	0.00927
nu hat (MLE)	1171	nu star (bias corrected)	1165
MLE Mean (bias corrected)	0.011		
MLE Sd (bias corrected)	0.0101	95% Percentile of Chisquare (2kstar)	6.695

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	8.0000E-4	Mean	0.0111
Maximum	0.21	Median	0.01
SD	0.015	CV	1.349
k hat (MLE)	1.529	k star (bias corrected MLE)	1.523
Theta hat (MLE)	0.00728	Theta star (bias corrected MLE)	0.00731
nu hat (MLE)	2040	nu star (bias corrected)	2032
MLE Mean (bias corrected)	0.0111	MLE Sd (bias corrected)	0.00902
95% Percentile of Chisquare (2kstar)	7.896	90% Percentile	0.0231

95% Percentile	0.0289	99% Percentile	0.0418

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0293	0.0292	95% Approx. Gamma UPL	0.0276	0.0275
95% Gamma USL	0.0782	0.0861			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0095	SD (KM)	0.0155
Variance (KM)	2.4129E-4	SE of Mean (KM)	6.1951E-4
k hat (KM)	0.374	k star (KM)	0.373
nu hat (KM)	498.6	nu star (KM)	497.7
theta hat (KM)	0.0254	theta star (KM)	0.0255
80% gamma percentile (KM)	0.0152	90% gamma percentile (KM)	0.0271
95% gamma percentile (KM)	0.0404	99% gamma percentile (KM)	0.074

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0283	0.0285	95% Approx. Gamma UPL	0.0265	0.0265
95% KM Gamma Percentile	0.0265	0.0265	95% Gamma USL	0.0868	0.1

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.95	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0992	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0369	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.00935	Mean in Log Scale	-5.205
SD in Original Scale	0.0153	SD in Log Scale	0.977
95% UTL95% Coverage	0.0302	95% BCA UTL95% Coverage	0.0338
95% Bootstrap (%) UTL95% Coverage	0.034	95% UPL (t)	0.0275
90% Percentile (z)	0.0192	95% Percentile (z)	0.0274
99% Percentile (z)	0.0533	95% USL	0.219

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-5.226	95% KM UTL (Lognormal)95% Coverage	0.0325
KM SD of Logged Data	1.03	95% KM UPL (Lognormal)	0.0294
95% KM Percentile Lognormal (z)	0.0293	95% KM USL (Lognormal)	0.262

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0138	Mean in Log Scale	-4.923
SD in Original Scale	0.0188	SD in Log Scale	1.133
95% UTL95% Coverage	0.0526	95% UPL (t)	0.0471
90% Percentile (z)	0.0311	95% Percentile (z)	0.0469
99% Percentile (z)	0.102	95% USL	0.522

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

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Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	643	95% UTL with95% Coverage	0.1
Approx, f used to compute achieved CC	1.354	Approximate Actual Confidence Coefficient achieved by UTL	0.947
Approximate Sample Size needed to achieve specified CC	647	95% UPL	0.1
95% USL	0.21	95% KM Chebyshev UPL	0.0773

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_nickel)

General Statistics

Total Number of Observations	669	Number of Distinct Observations	388
Minimum	1.2	First Quartile	7.85
Second Largest	49.3	Median	10.7
Maximum	60.4	Third Quartile	15.9
Mean	12.93	SD	7.535
Coefficient of Variation	0.583	Skewness	1.989
Mean of logged Data	2.42	SD of logged Data	0.525

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test

Shapiro Wilk Test Statistic	0.837	**Normal GOF Test**
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.125	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	26.08	90% Percentile (z)	22.58
95% UPL (t)	25.35	95% Percentile (z)	25.32
95% USL	41.36	99% Percentile (z)	30.46

Gamma GOF Test

A-D Test Statistic	6.748	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0804	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0367	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

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Gamma Statistics

k hat (MLE)	3.74	k star (bias corrected MLE)	3.724
Theta hat (MLE)	3.457	Theta star (bias corrected MLE)	3.471
nu hat (MLE)	5004	nu star (bias corrected)	4983
MLE Mean (bias corrected)	12.93	MLE Sd (bias corrected)	6.699

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	25.42	90% Percentile	21.91
95% Hawkins Wixley (HW) Approx. Gamma UPL	25.62	95% Percentile	25.54
95% WH Approx. Gamma UTL with 95% Coverage	26.46	99% Percentile	33.33
95% HW Approx. Gamma UTL with 95% Coverage	26.72		
95% WH USL	54.79	95% HW USL	58.78

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.979	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk P Value	0.0132	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0569	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.0316	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	28.1	90% Percentile (z)	22.02
95% UPL (t)	26.7	95% Percentile (z)	26.65
95% USL	81.38	99% Percentile (z)	38.1

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	646	95% UTL with 95% Coverage	29.9
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
		Approximate Sample Size needed to achieve specified CC	647
95% Percentile Bootstrap UTL with 95% Coverage	29.56	95% BCA Bootstrap UTL with 95% Coverage	29.6
95% UPL	27.45	90% Percentile	21.8
90% Chebyshev UPL	35.55	95% Percentile	27.38
95% Chebyshev UPL	45.79	99% Percentile	42.21
95% USL	60.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_potassium)

General Statistics

Total Number of Observations	669	Number of Missing Observations	0
Number of Distinct Observations	367		

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Number of Detects	667	Number of Non-Detects	2
Number of Distinct Detects	367	Number of Distinct Non-Detects	2
Minimum Detect	298	Minimum Non-Detect	1100
Maximum Detect	21000	Maximum Non-Detect	1400
Variance Detected	1058076	Percent Non-Detects	0.299%
Mean Detected	1346	SD Detected	1029
Mean of Detected Logged Data	7.071	SD of Detected Logged Data	0.486

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.56	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.183	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1344	KM SD	1027
95% UTL95% Coverage	3137	95% KM UPL (t)	3037
90% KM Percentile (z)	2660	95% KM Percentile (z)	3033
99% KM Percentile (z)	3733	95% KM USL	5218

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1343	SD	1028
95% UTL95% Coverage	3138	95% UPL (t)	3038
90% Percentile (z)	2661	95% Percentile (z)	3034
99% Percentile (z)	3735	95% USL	5222

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.499E+28	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.071	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0367	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.91	k star (bias corrected MLE)	3.894
Theta hat (MLE)	344.1	Theta star (bias corrected MLE)	345.6
nu hat (MLE)	5216	nu star (bias corrected)	5194
MLE Mean (bias corrected)	1346		
MLE Sd (bias corrected)	681.9	95% Percentile of Chisquare (2kstar)	15.2

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	298	Mean	1344
Maximum	21000	Median	1160
SD	1028	CV	0.765
k hat (MLE)	3.911	k star (bias corrected MLE)	3.895
Theta hat (MLE)	343.6	Theta star (bias corrected MLE)	345.1
nu hat (MLE)	5233	nu star (bias corrected)	5211
MLE Mean (bias corrected)	1344	MLE Sd (bias corrected)	681
95% Percentile of Chisquare (2kstar)	15.21	90% Percentile	2257
95% Percentile	2624	99% Percentile	3408

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2694	2693	95% Approx. Gamma UPL	2591	2586
95% Gamma USL	5494	5774			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1344	SD (KM)	1027
Variance (KM)	1054190	SE of Mean (KM)	39.73
k hat (KM)	1.714	k star (KM)	1.707
nu hat (KM)	2293	nu star (KM)	2284
theta hat (KM)	784.3	theta star (KM)	787.3
80% gamma percentile (KM)	2050	90% gamma percentile (KM)	2715
95% gamma percentile (KM)	3355	99% gamma percentile (KM)	4789

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2693	2692	95% Approx. Gamma UPL	2590	2585
95% KM Gamma Percentile	2586	2581	95% Gamma USL	5490	5770

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.987	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0.72	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0301	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0317	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1344	Mean in Log Scale	7.07
SD in Original Scale	1027	SD in Log Scale	0.486
95% UTL95% Coverage	2749	95% BCA UTL95% Coverage	2916
95% Bootstrap (%) UTL95% Coverage	2916	95% UPL (t)	2622
90% Percentile (z)	2194	95% Percentile (z)	2617
99% Percentile (z)	3645	95% USL	7363

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	7.07	95% KM UTL (Lognormal)95% Coverage	2749

KM SD of Logged Data	0.486	95% KM UPL (Lognormal)	2621
95% KM Percentile Lognormal (z)	2617	95% KM USL (Lognormal)	7361

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1343	Mean in Log Scale	7.069
SD in Original Scale	1028	SD in Log Scale	0.487
95% UTL95% Coverage	2751	95% UPL (t)	2623
90% Percentile (z)	2194	95% Percentile (z)	2619
99% Percentile (z)	3650	95% USL	7384

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	645	95% UTL with95% Coverage	2980
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
Approximate Sample Size needed to achieve specified CC	647	95% UPL	2655
95% USL	21000	95% KM Chebyshev UPL	5823

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_selenium)

General Statistics

Total Number of Observations	627	Number of Missing Observations	0
Number of Distinct Observations	80		
Number of Detects	126	Number of Non-Detects	501
Number of Distinct Detects	55	Number of Distinct Non-Detects	50
Minimum Detect	0.01	Minimum Non-Detect	0.03
Maximum Detect	5.7	Maximum Non-Detect	5.1
Variance Detected	2.18	Percent Non-Detects	79.9%
Mean Detected	1.395	SD Detected	1.476
Mean of Detected Logged Data	-0.49	SD of Detected Logged Data	1.475

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.749	d2max (for USL)	3.756

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.81	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.244	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.0917	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

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Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.32	KM SD	0.861
95% UTL95% Coverage	1.826	95% KM UPL (t)	1.739
90% KM Percentile (z)	1.423	95% KM Percentile (z)	1.736
99% KM Percentile (z)	2.323	95% KM USL	3.554

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.452	SD	0.874
95% UTL95% Coverage	1.981	95% UPL (t)	1.893
90% Percentile (z)	1.572	95% Percentile (z)	1.89
99% Percentile (z)	2.485	95% USL	3.735

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.005	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.797	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.181	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0861	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.73	k star (bias corrected MLE)	0.718
Theta hat (MLE)	1.911	Theta star (bias corrected MLE)	1.943
nu hat (MLE)	184	nu star (bias corrected)	181
MLE Mean (bias corrected)	1.395		
MLE Sd (bias corrected)	1.646	95% Percentile of Chisquare (2kstar)	4.844

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.297
Maximum	5.7	Median	0.01
SD	0.861	CV	2.896
k hat (MLE)	0.286	k star (bias corrected MLE)	0.286
Theta hat (MLE)	1.039	Theta star (bias corrected MLE)	1.04
nu hat (MLE)	358.8	nu star (bias corrected)	358.4
MLE Mean (bias corrected)	0.297	MLE Sd (bias corrected)	0.556
95% Percentile of Chisquare (2kstar)	2.656	90% Percentile	0.881
95% Percentile	1.381	99% Percentile	2.686

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.99	0.888	95% Approx. Gamma UPL	0.888	0.785
95% Gamma USL	4.95	5.904			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.32	SD (KM)	0.861
Variance (KM)	0.742	SE of Mean (KM)	0.0352
k hat (KM)	0.138	k star (KM)	0.138
nu hat (KM)	172.9	nu star (KM)	173.4
theta hat (KM)	2.319	theta star (KM)	2.313
80% gamma percentile (KM)	0.324	90% gamma percentile (KM)	0.936
95% gamma percentile (KM)	1.786	99% gamma percentile (KM)	4.298

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.109	1.043	95% Approx. Gamma UPL	1.001	0.929
95% KM Gamma Percentile	0.997	0.924	95% Gamma USL	5.165	6.343

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.894	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	7.521E-13	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.157	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0725	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.314	Mean in Log Scale	-3.345
SD in Original Scale	0.855	SD in Log Scale	2.122
95% UTL95% Coverage	1.443	95% BCA UTL95% Coverage	2.7
95% Bootstrap (%) UTL95% Coverage	2.94	95% UPL (t)	1.166
90% Percentile (z)	0.535	95% Percentile (z)	1.156
99% Percentile (z)	4.91	95% USL	102

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.18	95% KM UTL (Lognormal)95% Coverage	0.992
KM SD of Logged Data	1.813	95% KM UPL (Lognormal)	0.826
95% KM Percentile Lognormal (z)	0.82	95% KM USL (Lognormal)	37.67

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.452	Mean in Log Scale	-1.781
SD in Original Scale	0.874	SD in Log Scale	1.224
95% UTL95% Coverage	1.433	95% UPL (t)	1.267
90% Percentile (z)	0.808	95% Percentile (z)	1.261
99% Percentile (z)	2.904	95% USL	16.71

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	604	95% UTL with95% Coverage	3.5
Approx, f used to compute achieved CC	1.325	Approximate Actual Confidence Coefficient achieved by UTL	0.93
Approximate Sample Size needed to achieve specified CC	624	95% UPL	3.22

95% USL	5.7	95% KM Chebyshev UPL	4.076

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_silver)

General Statistics

Total Number of Observations	633	Number of Missing Observations	0
Number of Distinct Observations	188		
Number of Detects	478	Number of Non-Detects	155
Number of Distinct Detects	165	Number of Distinct Non-Detects	65
Minimum Detect	0.013	Minimum Non-Detect	0.036
Maximum Detect	1.2	Maximum Non-Detect	1.2
Variance Detected	0.0267	Percent Non-Detects	24.49%
Mean Detected	0.108	SD Detected	0.163
Mean of Detected Logged Data	-2.709	SD of Detected Logged Data	0.831

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.749	d2max (for USL)	3.758

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.501	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.326	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.0473	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0994	KM SD	0.152
95% UTL95% Coverage	0.366	95% KM UPL (t)	0.35
90% KM Percentile (z)	0.295	95% KM Percentile (z)	0.35
99% KM Percentile (z)	0.454	95% KM USL	0.672

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.158	SD	0.201
95% UTL95% Coverage	0.51	95% UPL (t)	0.49
90% Percentile (z)	0.416	95% Percentile (z)	0.489
99% Percentile (z)	0.626	95% USL	0.914

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	40.73	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.781	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.226	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0426	Data Not Gamma Distributed at 5% Significance Level	

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Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.169	k star (bias corrected MLE)	1.163
Theta hat (MLE)	0.0925	Theta star (bias corrected MLE)	0.093
nu hat (MLE)	1118	nu star (bias corrected)	1112
MLE Mean (bias corrected)	0.108		
MLE Sd (bias corrected)	0.1	95% Percentile of Chisquare (2kstar)	6.61

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.0956
Maximum	1.2	Median	0.053
SD	0.148	CV	1.547
k hat (MLE)	1.038	k star (bias corrected MLE)	1.034
Theta hat (MLE)	0.0921	Theta star (bias corrected MLE)	0.0924
nu hat (MLE)	1314	nu star (bias corrected)	1309
MLE Mean (bias corrected)	0.0956	MLE Sd (bias corrected)	0.094
95% Percentile of Chisquare (2kstar)	6.122	90% Percentile	0.218
95% Percentile	0.283	99% Percentile	0.433

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.283	0.281	95% Approx. Gamma UPL	0.264	0.261
95% Gamma USL	0.854	0.963			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0994	SD (KM)	0.152
Variance (KM)	0.0232	SE of Mean (KM)	0.00645
k hat (KM)	0.426	k star (KM)	0.425
nu hat (KM)	539.7	nu star (KM)	538.5
theta hat (KM)	0.233	theta star (KM)	0.234
80% gamma percentile (KM)	0.162	90% gamma percentile (KM)	0.278
95% gamma percentile (KM)	0.404	99% gamma percentile (KM)	0.721

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.278	0.27	95% Approx. Gamma UPL	0.261	0.252
95% KM Gamma Percentile	0.26	0.252	95% Gamma USL	0.798	0.857

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.877	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.146	**Lilliefors GOF Test**

10% Lilliefors Critical Value	0.0374	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0961	Mean in Log Scale	-2.774
SD in Original Scale	0.145	SD in Log Scale	0.774
95% UTL95% Coverage	0.242	95% BCA UTL95% Coverage	0.49
95% Bootstrap (%) UTL95% Coverage	0.494	95% UPL (t)	0.224
90% Percentile (z)	0.168	95% Percentile (z)	0.223
99% Percentile (z)	0.378	95% USL	1.146

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.777	95% KM UTL (Lognormal)95% Coverage	0.255
KM SD of Logged Data	0.807	95% KM UPL (Lognormal)	0.235
95% KM Percentile Lognormal (z)	0.235	95% KM USL (Lognormal)	1.29

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.158	Mean in Log Scale	-2.48
SD in Original Scale	0.201	SD in Log Scale	1.057
95% UTL95% Coverage	0.532	95% UPL (t)	0.478
90% Percentile (z)	0.325	95% Percentile (z)	0.477
99% Percentile (z)	0.98	95% USL	4.452

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	610	95% UTL with95% Coverage	1.1
Approx, f used to compute achieved CC	1.338	Approximate Actual Confidence Coefficient achieved by UTL	0.936
Approximate Sample Size needed to achieve specified CC	624	95% UPL	1.1
95% USL	1.2	95% KM Chebyshev UPL	0.764

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_sodium)

General Statistics

Total Number of Observations	669	Number of Missing Observations	0
Number of Distinct Observations	283		
Number of Detects	631	Number of Non-Detects	38
Number of Distinct Detects	267	Number of Distinct Non-Detects	37
Minimum Detect	26.25	Minimum Non-Detect	46.6
Maximum Detect	12000	Maximum Non-Detect	480
Variance Detected	229718	Percent Non-Detects	5.68%

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Mean Detected	158.8	SD Detected	479.3
Mean of Detected Logged Data	4.812	SD of Detected Logged Data	0.545

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.12	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.391	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.0412	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	155	KM SD	465.5
95% UTL95% Coverage	967.7	95% KM UPL (t)	922.3
90% KM Percentile (z)	751.5	95% KM Percentile (z)	920.7
99% KM Percentile (z)	1238	95% KM USL	1911

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	154.7	SD	465.9
95% UTL95% Coverage	968.1	95% UPL (t)	922.7
90% Percentile (z)	751.8	95% Percentile (z)	921
99% Percentile (z)	1239	95% USL	1913

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.585E+28	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.167	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0378	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.106	k star (bias corrected MLE)	2.097
Theta hat (MLE)	75.41	Theta star (bias corrected MLE)	75.74
nu hat (MLE)	2658	nu star (bias corrected)	2646
MLE Mean (bias corrected)	158.8		
MLE Sd (bias corrected)	109.7	95% Percentile of Chisquare (2kstar)	9.8

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	152.6
Maximum	12000	Median	117
SD	466.3	CV	3.056

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k hat (MLE)	1.355	k star (bias corrected MLE)	1.35
Theta hat (MLE)	112.6	Theta star (bias corrected MLE)	113
nu hat (MLE)	1813	nu star (bias corrected)	1806
MLE Mean (bias corrected)	152.6	MLE Sd (bias corrected)	131.3
95% Percentile of Chisquare (2kstar)	7.287	90% Percentile	326.2
95% Percentile	411.8	99% Percentile	606.5

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	373.9	388.8	95% Approx. Gamma UPL	354.5	366.7
95% Gamma USL	952.2	1116			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	155	SD (KM)	465.5
Variance (KM)	216671	SE of Mean (KM)	18.01
k hat (KM)	0.111	k star (KM)	0.111
nu hat (KM)	148.4	nu star (KM)	149.1
theta hat (KM)	1398	theta star (KM)	1392
80% gamma percentile (KM)	124.4	90% gamma percentile (KM)	429.4
95% gamma percentile (KM)	892.1	99% gamma percentile (KM)	2331

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	341	326	95% Approx. Gamma UPL	325.2	310.7
95% KM Gamma Percentile	324.7	310.2	95% Gamma USL	794.6	788.6

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.961	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	2.220E-16	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.079	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0326	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	154.9	Mean in Log Scale	4.792
SD in Original Scale	465.8	SD in Log Scale	0.54
95% UTL95% Coverage	309.3	95% BCA UTL95% Coverage	322.4
95% Bootstrap (%) UTL95% Coverage	323.2	95% UPL (t)	293.4
90% Percentile (z)	240.7	95% Percentile (z)	292.9
99% Percentile (z)	423.1	95% USL	923.7

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	4.79	95% KM UTL (Lognormal)95% Coverage	312.7
KM SD of Logged Data	0.547	95% KM UPL (Lognormal)	296.4
95% KM Percentile Lognormal (z)	295.8	95% KM USL (Lognormal)	948

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	154.7	Mean in Log Scale	4.783

SD in Original Scale	465.9	SD in Log Scale	0.558
95% UTL95% Coverage	316.2	95% UPL (t)	299.4
90% Percentile (z)	244	95% Percentile (z)	298.8
99% Percentile (z)	437	95% USL	979.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	645	95% UTL with95% Coverage	344
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
Approximate Sample Size needed to achieve specified CC	647	95% UPL	312.5
95% USL	12000	95% KM Chebyshev UPL	2186

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_thallium)

General Statistics

Total Number of Observations	535	Number of Missing Observations	0
Number of Distinct Observations	186		
Number of Detects	422	Number of Non-Detects	113
Number of Distinct Detects	162	Number of Distinct Non-Detects	59
Minimum Detect	0.02	Minimum Non-Detect	0.028
Maximum Detect	1.1	Maximum Non-Detect	1.1
Variance Detected	0.00575	Percent Non-Detects	21.12%
Mean Detected	0.116	SD Detected	0.0758
Mean of Detected Logged Data	-2.28	SD of Detected Logged Data	0.481

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.758	d2max (for USL)	3.713

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.667	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.183	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.0503	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.106	KM SD	0.0735
95% UTL95% Coverage	0.235	95% KM UPL (t)	0.227
90% KM Percentile (z)	0.2	95% KM Percentile (z)	0.227
99% KM Percentile (z)	0.277	95% KM USL	0.379

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.135	SD	0.125
95% UTL95% Coverage	0.355	95% UPL (t)	0.341
90% Percentile (z)	0.295	95% Percentile (z)	0.34
99% Percentile (z)	0.425	95% USL	0.599

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.111	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0979	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0443	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.159	k star (bias corrected MLE)	4.131
Theta hat (MLE)	0.0279	Theta star (bias corrected MLE)	0.0281
nu hat (MLE)	3510	nu star (bias corrected)	3487
MLE Mean (bias corrected)	0.116		
MLE Sd (bias corrected)	0.057	95% Percentile of Chisquare (2kstar)	15.88

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.104
Maximum	1.1	Median	0.096
SD	0.0738	CV	0.713
k hat (MLE)	2.781	k star (bias corrected MLE)	2.767
Theta hat (MLE)	0.0372	Theta star (bias corrected MLE)	0.0374
nu hat (MLE)	2976	nu star (bias corrected)	2961
MLE Mean (bias corrected)	0.104	MLE Sd (bias corrected)	0.0623
95% Percentile of Chisquare (2kstar)	11.89	90% Percentile	0.187
95% Percentile	0.222	99% Percentile	0.3

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.232	0.237	95% Approx. Gamma UPL	0.22	0.225
95% Gamma USL	0.505	0.559			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.106	SD (KM)	0.0735
Variance (KM)	0.0054	SE of Mean (KM)	0.00329
k hat (KM)	2.085	k star (KM)	2.074
nu hat (KM)	2231	nu star (KM)	2219
theta hat (KM)	0.0509	theta star (KM)	0.0511

80% gamma percentile (KM)	0.158	90% gamma percentile (KM)	0.205
95% gamma percentile (KM)	0.249	99% gamma percentile (KM)	0.346

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.224	0.227	95% Approx. Gamma UPL	0.214	0.216
95% KM Gamma Percentile	0.214	0.215	95% Gamma USL	0.466	0.501

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.98	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0.126	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0732	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0398	Data Not Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.106	Mean in Log Scale	-2.386
SD in Original Scale	0.0715	SD in Log Scale	0.51
95% UTL95% Coverage	0.226	95% BCA UTL95% Coverage	0.235
95% Bootstrap (%) UTL95% Coverage	0.236	95% UPL (t)	0.213
90% Percentile (z)	0.177	95% Percentile (z)	0.213
99% Percentile (z)	0.302	95% USL	0.612

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.401	95% KM UTL (Lognormal)95% Coverage	0.241
KM SD of Logged Data	0.555	95% KM UPL (Lognormal)	0.226
95% KM Percentile Lognormal (z)	0.226	95% KM USL (Lognormal)	0.712

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.135	Mean in Log Scale	-2.297
SD in Original Scale	0.125	SD in Log Scale	0.748
95% UTL95% Coverage	0.375	95% UPL (t)	0.345
90% Percentile (z)	0.262	95% Percentile (z)	0.344
99% Percentile (z)	0.573	95% USL	1.619

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	516	95% UTL with95% Coverage	0.96
Approx, f used to compute achieved CC	1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.93
Approximate Sample Size needed to achieve specified CC	529	95% UPL	0.882
95% USL	1.1	95% KM Chebyshev UPL	0.427

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.

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The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_vanadium)

General Statistics

Total Number of Observations	669	Number of Distinct Observations	293
Minimum	3.4	First Quartile	13.3
Second Largest	110	Median	18.1
Maximum	170	Third Quartile	23.8
Mean	20.19	SD	11.36
Coefficient of Variation	0.562	Skewness	4.912
Mean of logged Data	2.902	SD of logged Data	0.436

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test

Shapiro Wilk Test Statistic	0.738	**Normal GOF Test**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.144	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	40.02	90% Percentile (z)	34.75
95% UPL (t)	38.91	95% Percentile (z)	38.87
95% USL	63.04	99% Percentile (z)	46.61

Gamma GOF Test

A-D Test Statistic	7.507	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0805	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0366	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.991	k star (bias corrected MLE)	4.969
Theta hat (MLE)	4.046	Theta star (bias corrected MLE)	4.064
nu hat (MLE)	6678	nu star (bias corrected)	6649
MLE Mean (bias corrected)	20.19	MLE Sd (bias corrected)	9.059

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	36.8	90% Percentile	32.32
95% Hawkins Wixley (HW) Approx. Gamma UPL	36.83	95% Percentile	37.03
95% WH Approx. Gamma UTL with 95% Coverage	38.13	99% Percentile	46.97
95% HW Approx. Gamma UTL with 95% Coverage	38.22		
95% WH USL	73.35	95% HW USL	76.79

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Lognormal GOF Test

Shapiro Wilk Test Statistic	0.983	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk P Value	0.16	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.046	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.0316	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	38.97	90% Percentile (z)	31.83
	95% UPL (t)	37.34	95% Percentile (z)	37.29
	95% USL	94.26	99% Percentile (z)	50.18

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		646	95% UTL with 95% Coverage	41.4
Approx, f used to compute achieved CC		1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
			Approximate Sample Size needed to achieve specified CC	647
95% Percentile Bootstrap UTL with	95% Coverage	40.96	95% BCA Bootstrap UTL with 95% Coverage	40.96
	95% UPL	38.9	90% Percentile	32.22
	90% Chebyshev UPL	54.28	95% Percentile	38.68
	95% Chebyshev UPL	69.73	99% Percentile	51.1
	95% USL	170		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (no nure, bootstrap bkgd samples removed_zinc)

General Statistics

Total Number of Observations	669	Number of Distinct Observations	423
Minimum	7	First Quartile	35.8
Second Largest	243	Median	44.1
Maximum	303	Third Quartile	57.8
Mean	51.35	SD	28.25
Coefficient of Variation	0.55	Skewness	3.105
Mean of logged Data	3.832	SD of logged Data	0.444

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.746	d2max (for USL)	3.773

Normal GOF Test

Shapiro Wilk Test Statistic	0.761	**Normal GOF Test**
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.178	**Lilliefors GOF Test**

1% Lilliefors Critical Value	0.04	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	100.7	90% Percentile (z)	87.55
	95% UPL (t)	97.91	95% Percentile (z)	97.82
	95% USL	157.9	99% Percentile (z)	117.1

Gamma GOF Test

A-D Test Statistic	14.49	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.118	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0366	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.861	k star (bias corrected MLE)	4.84
Theta hat (MLE)	10.56	Theta star (bias corrected MLE)	10.61
nu hat (MLE)	6503	nu star (bias corrected)	6476
MLE Mean (bias corrected)	51.35	MLE Sd (bias corrected)	23.34

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		94.22	90% Percentile	82.6
95% Hawkins Wixley (HW) Approx. Gamma UPL		94.36	95% Percentile	94.77
95% WH Approx. Gamma UTL with	95% Coverage	97.66	99% Percentile	120.5
95% HW Approx. Gamma UTL with	95% Coverage	97.94		
	95% WH USL	189.1	95% HW USL	198.4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.963	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk P Value	3.886E-15	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0839	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.0316	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	100.2	90% Percentile (z)	81.55
	95% UPL (t)	95.97	95% Percentile (z)	95.82
	95% USL	246.5	99% Percentile (z)	129.7

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		646	95% UTL with 95% Coverage	118.5
Approx, f used to compute achieved CC		1.358	Approximate Actual Confidence Coefficient achieved by UTL	0.949
			Approximate Sample Size needed to achieve specified CC	647
95% Percentile Bootstrap UTL with	95% Coverage	118	95% BCA Bootstrap UTL with 95% Coverage	117
	95% UPL	102	90% Percentile	81

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90% Chebyshev UPL	136.2	95% Percentile	101.6
95% Chebyshev UPL	174.6	99% Percentile	149
95% USL	303		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

ATTACHMENT C3 PROUCL INPUT AND OUTPUT FILES FOR POREWATER BTVS AND POREWATER HQ BTVS

Table C3-1
ProUCL Input of Full Data Set for Porewater Dissolved Concentrations and TU Values for Approaches A and B
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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Aluminum	143	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Aluminum	59.2	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Aluminum	265	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Aluminum	76.6	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Aluminum	182	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Aluminum	27.7	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Aluminum	64.7	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Aluminum	66	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Aluminum	67.5	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Aluminum	20.7	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Aluminum	5.9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Aluminum	11.3	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Aluminum	27.9	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Aluminum	30.9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Aluminum	12	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Aluminum	12.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Aluminum	7.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Aluminum	5.9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Aluminum	5.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Aluminum	4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Aluminum	6.6	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Aluminum	6.4	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Antimony	0.736	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.663	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.593	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.393	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Antimony	0.382	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.382	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.358	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.311	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.249	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.246	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.235	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.235	0	Dissolved Concentration (ug/l)	no

Table C3-1
ProUCL Input of Full Data Set for Porewater Dissolved Concentrations and TU Values for Approaches A and B
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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.223	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Antimony	0.222	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	0.215	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	0.201	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	0.2	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	0.184	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.168	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Antimony	0.166	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	0.162	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	0.076	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.244	1	Dissolved Concentration (ug/l)	yes
2013 Phase 2 Sediment Study	PW-G-1	Cadmium	0.128	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.145	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Cadmium	0.11	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Cadmium	0.077	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.036	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Cadmium	0.036	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.033	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.024	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.019	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.021	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.02	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.027	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.02	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.014	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.019	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.011	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.008	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.01	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.009	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.008	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.008	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	3.86	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	0.69	0	Dissolved Concentration (ug/l)	no

Table C3-1
ProUCL Input of Full Data Set for Porewater Dissolved Concentrations and TU Values for Approaches A and B
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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	0.65	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	0.35	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	0.9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	0.82	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	1.17	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	0.51	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	0.47	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	0.54	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	0.77	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	0.31	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.73	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.3	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	1.56	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.28	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Copper	1.46	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Copper	1.32	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Copper	0.88	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.19	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Copper	1.51	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.08	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Iron	11100	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	5500	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	3250	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	890	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Iron	609	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	454	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	282	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	192	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Iron	104	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	100	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	51	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	47	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	33	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	28	0	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	22	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Iron	21.7	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	20	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	11	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	10	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	8	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Lead	5.72	1	Dissolved Concentration (ug/l)	yes
2013 Phase 2 Sediment Study	PW-LAL-6	Lead	5.59	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	1.35	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.989	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Lead	0.891	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Lead	0.636	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.254	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.236	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.268	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.368	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.155	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.307	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.121	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.09	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.139	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.154	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.072	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.088	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.059	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.039	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.065	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.059	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Manganese	859	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Manganese	606	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Manganese	707	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Manganese	716	1	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF008-PW-1-100119	Manganese	400	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Manganese	291	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Manganese	450	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Manganese	197	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Manganese	293	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Manganese	242	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Manganese	82.3	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Manganese	50.1	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Manganese	29.6	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Manganese	16.1	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Manganese	4.73	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Manganese	5.64	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Manganese	3.47	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Manganese	2.92	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Manganese	1.93	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Manganese	1.39	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Manganese	0.91	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Manganese	0.79	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	80.4	1	Dissolved Concentration (ug/l)	yes
2013 Phase 2 Sediment Study	PW-G-4	Zinc	74.6	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Zinc	56.5	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Zinc	19	0	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Zinc	27.3	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	5.3	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	6.8	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	5.3	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	4.1	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	2.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	2.3	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	2.1	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	1.6	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	2	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	2.2	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	1.4	0	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	1.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	1.7	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	1.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	1.8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	1.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	1.1	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Aluminum	0.43	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Aluminum	0.27	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Aluminum	0.24	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Aluminum	0.24	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Aluminum	0.23	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Aluminum	0.2	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Aluminum	0.18	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Aluminum	0.13	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-1	Aluminum	0.061	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Aluminum	0.054	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Aluminum	0.045	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Aluminum	0.042	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Aluminum	0.04	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-4	Aluminum	0.035	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Aluminum	0.032	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Aluminum	0.03	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Aluminum	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Aluminum	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Aluminum	0.018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Aluminum	0.018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Aluminum	0.015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Aluminum	0.012	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Aluminum	0.065	1	Plant Specific TU	yes
2013 Phase 2 Sediment Study	PW-LAL-4	Aluminum	0.044	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Aluminum	0.035	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Aluminum	0.019	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Aluminum	0.016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Aluminum	0.016	1	Plant Specific TU	no

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2019 Phase 3 Sediment Study	REF004-PW-1-092819	Aluminum	0.016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Aluminum	0.014	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Aluminum	0.0075	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Aluminum	0.0068	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Aluminum	0.0068	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Aluminum	0.005	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Aluminum	0.003	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Aluminum	0.0029	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Aluminum	0.0028	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Aluminum	0.0018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Aluminum	0.0016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Aluminum	0.0016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Aluminum	0.0014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Aluminum	0.0014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Aluminum	0.0013	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Aluminum	0.00098	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Antimony	0.019	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.017	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.01	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-1	Antimony	0.0098	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.0098	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.0092	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.008	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.0064	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.0063	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.0057	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Antimony	0.0057	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	0.0055	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	0.0052	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	0.0051	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	0.0047	1	Aquatic Life TU	no

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2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.0043	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-4	Antimony	0.0043	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	0.0042	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	0.0019	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Antimony	0.00026	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.00024	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.00021	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.00014	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Antimony	0.00014	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.00014	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.00013	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.00011	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	8.9E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	8.8E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	8.4E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	8.4E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.00008	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Antimony	7.9E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	7.7E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	7.2E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	7.1E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	6.6E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.00006	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Antimony	5.9E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	5.8E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	2.7E-05	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Antimony	0.0089	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.008	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.0071	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.0047	1	Benthic Invertebrate TU	no
2013 Phase 2 Sediment Study	PW-G-1	Antimony	0.0046	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.0046	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.0043	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.0037	1	Benthic Invertebrate TU	no

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2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.003	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.003	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.0028	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.0028	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.0027	1	Benthic Invertebrate TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Antimony	0.0027	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	0.0026	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	0.0024	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	0.0024	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	0.0022	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.002	1	Benthic Invertebrate TU	no
2013 Phase 2 Sediment Study	PW-G-4	Antimony	0.002	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	0.002	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	0.00092	1	Benthic Invertebrate TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Antimony	0.00033	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.0003	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.00027	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.00018	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Antimony	0.00017	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.00017	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.00016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.00011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.00011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.00011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.00011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.0001	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Antimony	0.0001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	9.8E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	9.1E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	9.1E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	8.4E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	7.6E-05	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Antimony	7.5E-05	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	7.4E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	3.5E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.44	1	Aquatic Life TU	yes
2013 Phase 2 Sediment Study	PW-G-1	Cadmium	0.26	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.21	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Cadmium	0.13	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Cadmium	0.12	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.08	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-4	Cadmium	0.078	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.069	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.051	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.046	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.043	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.042	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.035	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.032	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.027	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.026	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.016	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.014	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.013	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.011	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.009	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.06	1	White Sturgeon Specific TU	yes
2013 Phase 2 Sediment Study	PW-G-1	Cadmium	0.036	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.028	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Cadmium	0.017	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Cadmium	0.017	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.011	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Cadmium	0.011	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.0097	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.0071	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.0066	1	White Sturgeon Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.006	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.0059	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.0047	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.0044	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.0038	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.0035	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.0031	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.0022	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.002	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.0018	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.0015	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.0012	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.0044	1	Plant Specific TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.0026	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Cadmium	0.0023	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Cadmium	0.002	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Cadmium	0.0014	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Cadmium	0.00064	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.00064	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.00059	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.00048	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.00043	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.00038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.00036	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.00036	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.00034	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.00034	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.00025	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.0002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.00018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.00016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.00014	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	7.4	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	4.3	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	1.6	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	1.5	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	1.3	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	1.2	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	1.2	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	0.85	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	0.77	1	Fish Specific TU	yes
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	0.7	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	0.59	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	0.59	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	0.54	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.43	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.35	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	0.25	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	0.25	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.22	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-1	Copper	0.21	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	0.16	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	0.16	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Copper	0.14	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	0.13	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	0.12	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Copper	0.12	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	0.12	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	0.089	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	0.086	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	0.077	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.07	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	0.07	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Copper	0.058	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	0.056	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.056	1	Fish Specific TU	no

Table C3-1
ProUCL Input of Full Data Set for Porewater Dissolved Concentrations and TU Values for Approaches A and B
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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2013 Phase 2 Sediment Study	PW-G-1	Copper	0.047	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	0.045	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.038	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.036	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.028	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Copper	0.026	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Copper	0.025	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Copper	0.014	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.01	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.0044	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	14	1	White Sturgeon Specific TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	9.1	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	3.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	3	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	2.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	2.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	2.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	1.5	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	1.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	1.1	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	1	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	1	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.75	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.64	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	0.4	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.38	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Copper	0.33	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Copper	0.23	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Copper	0.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.13	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Copper	0.089	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.067	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Iron	11	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	6.6	1	Fish Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	5.5	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	5.4	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Iron	4.1	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	3.2	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	2.8	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	1.6	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.92	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	0.89	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Iron	0.61	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	0.45	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.37	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.35	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.34	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.28	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.19	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Iron	0.11	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Iron	0.1	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.1	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.1	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.092	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.08	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.067	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.06	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Iron	0.058	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.051	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.047	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.045	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.045	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.044	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.033	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.029	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.028	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.027	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.022	1	Aquatic Life TU	no

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2013 Phase 2 Sediment Study	PW-G-4	Iron	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.02	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.011	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-4	Iron	0.011	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.01	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.009	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.009	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.008	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Iron	9.2	1	Benthic Invertebrate TU	yes
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	6.5	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	4.2	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	1.6	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	1.1	1	Benthic Invertebrate TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Iron	0.92	1	Plant Specific TU	yes
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	0.46	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Iron	0.41	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.39	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	0.27	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.25	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.22	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.21	1	Benthic Invertebrate TU	no
2013 Phase 2 Sediment Study	PW-G-1	Iron	0.12	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.085	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	0.074	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.051	1	Benthic Invertebrate TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Iron	0.051	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.048	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.046	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.041	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	0.038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.034	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.025	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.024	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.023	1	Benthic Invertebrate TU	no

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2013 Phase 2 Sediment Study	PW-G-4	Iron	0.022	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.021	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.021	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.016	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Iron	0.0087	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.0083	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.0042	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.0039	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.0028	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.0023	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.0018	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Iron	0.0018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.0017	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.00092	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.00083	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.00075	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.00075	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.00067	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Lead	2.7	1	Aquatic Life TU	yes
2013 Phase 2 Sediment Study	PW-LAL-6	Lead	1.7	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.96	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.71	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-1	Lead	0.59	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-4	Lead	0.49	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.23	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.18	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.18	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.14	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.11	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.11	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.081	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Lead	0.077	1	Fish Specific TU	yes
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.06	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.058	1	Aquatic Life TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2013 Phase 2 Sediment Study	PW-LAL-6	Lead	0.047	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.045	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.04	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.038	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.03	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.028	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.027	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.027	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.019	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Lead	0.016	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Lead	0.013	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.0064	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.0051	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.005	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.0039	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.0031	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.003	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.0022	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.0017	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.0016	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.0013	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.0011	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.0011	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.00081	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.0008	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.00073	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.00061	1	Fish Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Lead	0.29	1	White Sturgeon Specific TU	yes
2013 Phase 2 Sediment Study	PW-LAL-6	Lead	0.16	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.1	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.076	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Lead	0.064	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Lead	0.053	1	White Sturgeon Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.026	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.02	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.019	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.014	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.012	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.01	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.0081	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.0064	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.0058	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.0042	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.0042	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.0038	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.003	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.003	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.0026	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.0021	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Lead	0.091	1	Plant Specific TU	yes
2013 Phase 2 Sediment Study	PW-LAL-6	Lead	0.089	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.021	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.016	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Lead	0.014	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Lead	0.01	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.0058	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.0049	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.0043	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.004	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.0037	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.0025	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.0024	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.0022	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.0019	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.0014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.0014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.0011	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.00094	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.00094	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.00062	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Manganese	0.54	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Manganese	0.47	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Manganese	0.39	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Manganese	0.31	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Manganese	0.27	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Manganese	0.26	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Manganese	0.24	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Manganese	0.16	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Manganese	0.16	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Manganese	0.11	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-1	Manganese	0.063	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-4	Manganese	0.042	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Manganese	0.016	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Manganese	0.0077	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Manganese	0.0036	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Manganese	0.0028	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Manganese	0.0027	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Manganese	0.0022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Manganese	0.0015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Manganese	0.0012	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Manganese	0.0007	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Manganese	0.00049	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Manganese	0.054	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Manganese	0.045	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Manganese	0.044	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Manganese	0.038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Manganese	0.028	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Manganese	0.025	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Manganese	0.018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Manganese	0.018	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2013 Phase 2 Sediment Study	PW-LAL-6	Manganese	0.015	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Manganese	0.012	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Manganese	0.0051	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Manganese	0.0031	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Manganese	0.0018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Manganese	0.001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Manganese	0.00035	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Manganese	0.0003	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Manganese	0.00022	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Manganese	0.00018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Manganese	0.00012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Manganese	8.7E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Manganese	5.7E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Manganese	4.9E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	1.1	1	Aquatic Life TU	yes
2013 Phase 2 Sediment Study	PW-G-4	Zinc	1	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Zinc	0.56	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-G-1	Zinc	0.24	1	Aquatic Life TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Zinc	0.18	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	0.072	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	0.062	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	0.059	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	0.059	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	0.04	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	0.031	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	0.027	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	0.021	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	0.02	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	0.018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	0.018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	0.018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	0.015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	0.012	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	0.012	1	Aquatic Life TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	0.011	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	0.0092	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	0.81	1	White Sturgeon Specific TU	yes
2013 Phase 2 Sediment Study	PW-G-4	Zinc	0.78	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Zinc	0.43	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Zinc	0.19	1	White Sturgeon Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Zinc	0.14	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	0.054	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	0.049	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	0.045	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	0.044	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	0.03	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	0.024	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	0.021	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	0.016	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	0.015	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	0.014	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	0.014	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	0.013	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	0.011	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	0.01	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	0.009	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	0.0082	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	0.0069	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	0.5	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-4	Zinc	0.47	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-4	Zinc	0.35	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-LAL-6	Zinc	0.17	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Zinc	0.12	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	0.042	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	0.033	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	0.033	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	0.026	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	0.016	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	0.014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	0.014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	0.013	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	0.012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	0.011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	0.011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	0.01	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	0.0094	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	0.0088	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	0.0088	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	0.0088	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	0.0069	1	Plant Specific TU	no
2013 Phase 2 Sediment Study	PW-G-1	Alkalinity	60.4	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Chloride	1.68	0	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Potassium	991	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Sodium	1240	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Sulfate	8.46	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Chloride	0.8	0	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Potassium	1980	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Sodium	1420	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Sulfate	9.62	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Alkalinity	106	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Chloride	0.6	0	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Potassium	4240	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Sodium	1070	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Sulfate	1.41	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Alkalinity	134	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Chloride	1.7	0	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Potassium	3380	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Sodium	3790	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Sulfate	11.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Alkalinity	58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Chloride	0.81	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Potassium	810	1	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF001-PW-1-092719	Sodium	2000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Sulfate	12.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Alkalinity	55	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Chloride	0.65	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Potassium	1280	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Sodium	2250	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Sulfate	11.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Alkalinity	56	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Chloride	0.41	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Potassium	1840	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Sodium	2150	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Sulfate	17.3	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Alkalinity	57	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Chloride	0.64	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Potassium	1250	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Sodium	2200	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Sulfate	12.3	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Alkalinity	55	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Chloride	0.63	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Potassium	730	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Sodium	1600	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Sulfate	11.2	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Alkalinity	76	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Chloride	0.49	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Potassium	1110	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Sodium	2050	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Sulfate	24.8	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Alkalinity	117	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Chloride	0.24	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Potassium	2630	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Sodium	2880	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Sulfate	28.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Alkalinity	65	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Chloride	3.92	1	Dissolved Concentration (mg/l)	no

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2019 Phase 3 Sediment Study	REF008-PW-1-100119	Potassium	7720	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Sodium	1910	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Sulfate	7.54	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Alkalinity	102	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Chloride	1.07	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Potassium	1940	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Sodium	2050	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Sulfate	3.83	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Alkalinity	74	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Chloride	5.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Potassium	2020	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Sodium	4380	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Sulfate	26.7	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Alkalinity	67	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Chloride	2.05	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Potassium	2000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Sodium	4250	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Sulfate	21	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Alkalinity	79	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Chloride	4.58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Potassium	2700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Sodium	2740	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Sulfate	35.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Alkalinity	111	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Chloride	1.46	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Potassium	2880	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Sodium	3800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Sulfate	17.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Alkalinity	105	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Chloride	0.49	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Potassium	1340	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Sodium	2450	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Sulfate	17.8	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Alkalinity	55	1	Dissolved Concentration (mg/l)	no

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2019 Phase 3 Sediment Study	REF015-PW-1-092419	Chloride	0.24	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Potassium	800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Sodium	940	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Sulfate	8.13	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Alkalinity	50	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Chloride	0.16	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Potassium	780	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Sodium	1130	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Sulfate	8.67	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Alkalinity	58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Chloride	0.24	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Potassium	700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Sodium	5190	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Sulfate	11.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Alkalinity	47	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Chloride	0.3	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Potassium	710	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Sodium	1770	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Sulfate	5.75	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-G-1	pH	7.95	1	Dissolved Concentration (su)	no
2013 Phase 2 Sediment Study	PW-G-1	DOC	1.87	0	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Hardness	62.5	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Calcium	19200	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-1	Magnesium	3520	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	pH	7.71	1	Dissolved Concentration (su)	no
2013 Phase 2 Sediment Study	PW-G-4	DOC	2.51	0	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Hardness	56	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Calcium	17300	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-G-4	Magnesium	3100	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	pH	7.52	1	Dissolved Concentration (su)	no
2013 Phase 2 Sediment Study	PW-LAL-4	DOC	4.12	0	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Hardness	82.9	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Calcium	22800	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-4	Magnesium	6280	1	Dissolved Concentration (ug/l)	no

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2013 Phase 2 Sediment Study	PW-LAL-6	pH	7.98	1	Dissolved Concentration (su)	no
2013 Phase 2 Sediment Study	PW-LAL-6	DOC	6.19	0	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Hardness	129	1	Dissolved Concentration (mg/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Calcium	37400	1	Dissolved Concentration (ug/l)	no
2013 Phase 2 Sediment Study	PW-LAL-6	Magnesium	8610	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	pH	7.18	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	DOC	0.595	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Hardness	63.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Calcium	18700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Magnesium	4080	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	pH	6.91	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	DOC	0.39	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Hardness	57.2	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Calcium	18800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Magnesium	2480	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	pH	6.67	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	DOC	0.28	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Hardness	62.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Calcium	20100	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Magnesium	2970	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	pH	7.22	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	DOC	0.41	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Hardness	59.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Calcium	18800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Magnesium	3080	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	pH	6.83	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	DOC	0.79	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Hardness	61	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Calcium	18000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Magnesium	3900	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	pH	6.86	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	DOC	0.07	0	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Hardness	97.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Calcium	29300	1	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF006-PW-1-100319	Magnesium	5910	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	pH	7.27	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	DOC	1.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Hardness	133	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Calcium	41000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Magnesium	7420	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	pH	6.65	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	DOC	1.54	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Hardness	72.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Calcium	22200	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Magnesium	4180	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	pH	6.95	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	DOC	1.94	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Hardness	91.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Calcium	29200	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Magnesium	4480	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	pH	7.11	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	DOC	0.91	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Hardness	94	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Calcium	28600	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Magnesium	5490	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	pH	6.97	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	DOC	0.41	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Hardness	81.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Calcium	26000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Magnesium	4060	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	pH	7.14	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	DOC	0.35	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Hardness	106	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Calcium	34000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Magnesium	5140	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	pH	7.33	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	DOC	0.81	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Hardness	112	1	Dissolved Concentration (mg/l)	no

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2019 Phase 3 Sediment Study	REF013-PW-1-092619	Calcium	32700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Magnesium	7260	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	pH	7.15	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	DOC	0.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Hardness	104	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Calcium	31400	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Magnesium	6160	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	pH	6.8	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	DOC	1.58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Hardness	57.9	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Calcium	17500	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Magnesium	3450	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	pH	7.09	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	DOC	0.55	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Hardness	53.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Calcium	16000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Magnesium	3280	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	pH	7.44	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	DOC	3.05	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Hardness	58.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Calcium	17200	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Magnesium	3780	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	pH	6.67	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	DOC	0.88	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Hardness	47	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Calcium	14000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Magnesium	2920	1	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF015-PW-1-092419	Aluminum	143	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Aluminum	59.2	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Aluminum	76.6	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Aluminum	27.7	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Aluminum	64.7	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Aluminum	66	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Aluminum	20.7	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Aluminum	5.9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Aluminum	11.3	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Aluminum	27.9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Aluminum	12	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Aluminum	12.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Aluminum	7.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Aluminum	5.9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Aluminum	5.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Aluminum	4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Aluminum	6.6	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Aluminum	6.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.663	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.593	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.393	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.382	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.358	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.311	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.249	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.246	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.235	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.235	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.223	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	0.215	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	0.201	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	0.2	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	0.184	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.168	0	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	0.162	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	0.076	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.244	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.145	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.036	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.033	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.024	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.019	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.021	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.02	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.027	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.02	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.014	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.019	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.011	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.008	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.01	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.009	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.008	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.008	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	3.86	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	0.69	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	0.65	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	0.35	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	0.9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	0.82	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	1.17	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	0.51	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	0.47	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	0.54	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	0.77	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	0.31	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.73	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.3	0	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	1.56	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.28	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.19	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.08	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	5500	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	3250	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	890	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	454	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	282	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	192	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	100	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	51	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	47	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	33	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	28	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	22	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	20	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	11	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	10	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	1.35	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.989	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.254	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.236	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.268	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.368	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.155	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.307	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.121	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.09	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.139	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.154	0	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.072	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.088	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.059	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.039	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.065	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.059	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Manganese	606	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Manganese	707	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Manganese	716	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Manganese	400	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Manganese	291	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Manganese	450	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Manganese	197	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Manganese	293	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Manganese	29.6	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Manganese	16.1	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Manganese	4.73	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Manganese	5.64	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Manganese	3.47	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Manganese	2.92	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Manganese	1.93	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Manganese	1.39	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Manganese	0.91	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Manganese	0.79	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	80.4	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	5.3	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	6.8	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	5.3	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	4.1	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	2.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	2.3	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	2.1	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	1.6	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	2	0	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	2.2	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	1.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	1.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	1.7	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	1.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	1.8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	1.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	1.1	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Aluminum	0.43	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Aluminum	0.27	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Aluminum	0.24	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Aluminum	0.2	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Aluminum	0.18	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Aluminum	0.13	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Aluminum	0.054	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Aluminum	0.045	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Aluminum	0.042	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Aluminum	0.04	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Aluminum	0.032	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Aluminum	0.03	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Aluminum	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Aluminum	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Aluminum	0.018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Aluminum	0.018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Aluminum	0.015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Aluminum	0.012	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Aluminum	0.035	1	Plant Specific TU	yes
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Aluminum	0.019	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Aluminum	0.016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Aluminum	0.016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Aluminum	0.014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Aluminum	0.007	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Aluminum	0.007	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Aluminum	0.005	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Aluminum	0.003	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Aluminum	0.003	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Aluminum	0.003	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Aluminum	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Aluminum	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Aluminum	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Aluminum	0.001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Aluminum	0.001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Aluminum	0.001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Aluminum	1E-03	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.017	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.01	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.01	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.009	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.008	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	0.005	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	0.005	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	0.005	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.004	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	0.004	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	0.002	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	2E-04	1	Fish Specific TU	yes
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	2E-04	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	1E-04	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	1E-04	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	1E-04	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	1E-04	1	Fish Specific TU	no

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2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	9E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	9E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	8E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	8E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	8E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	8E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	7E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	7E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	7E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	6E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	6E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	3E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.008	1	Benthic Invertebrate TU	yes
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.007	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.005	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.005	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.004	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.004	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.003	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.003	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.003	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.003	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.003	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	0.003	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	0.002	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	0.002	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	0.002	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.002	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	0.002	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	9E-04	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	3E-04	1	Plant Specific TU	yes
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	3E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	2E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	2E-04	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	2E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	1E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	1E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	1E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	1E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	1E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	1E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	1E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	9E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	9E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	8E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	8E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	7E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	4E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.44	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.21	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.08	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.069	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.051	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.046	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.043	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.042	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.035	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.032	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.027	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.026	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.016	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.014	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.013	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.011	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.009	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.06	1	White Sturgeon Specific TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.028	1	White Sturgeon Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.011	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.01	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.007	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.007	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.006	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.006	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.005	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.004	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.004	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.004	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.003	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.002	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.002	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.002	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.002	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.001	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.004	1	Plant Specific TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.003	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	6E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	6E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	5E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	4E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	4E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	4E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	4E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	3E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	3E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	3E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	2E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	2E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	2E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	1E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	1E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	1E-04	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	7.4	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	4.3	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	1.6	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	1.5	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	1.3	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	1.2	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	1.2	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	0.85	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	0.77	1	Fish Specific TU	yes
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	0.7	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	0.59	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	0.59	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	0.54	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.43	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.35	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	0.25	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	0.25	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.22	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	0.16	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	0.16	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	0.13	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	0.12	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	0.12	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	0.089	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	0.086	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	0.077	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.07	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	0.07	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	0.056	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.056	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	0.045	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.038	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.036	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.028	1	Fish Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.01	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.004	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	14	1	White Sturgeon Specific TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	9.1	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	3.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	3	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	2.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	2.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	2.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	1.5	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	1.2	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	1.1	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	1	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	1	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.75	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.64	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	0.4	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.38	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.13	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.067	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	6.6	1	Fish Specific TU	yes
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	5.5	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	5.4	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	3.2	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	2.8	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	1.6	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.92	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	0.89	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	0.45	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.37	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.35	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.34	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.28	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.19	1	Aquatic Life TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.1	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.1	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.092	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.08	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.067	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.06	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.051	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.047	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.045	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.045	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.044	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.033	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.029	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.028	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.027	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.02	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.011	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.01	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.009	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.009	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.008	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	6.5	1	Benthic Invertebrate TU	yes
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	4.2	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	1.6	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	1.1	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	0.46	1	Plant Specific TU	yes
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.39	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	0.27	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.25	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.22	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.21	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.085	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	0.074	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.051	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.048	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.046	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.041	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	0.038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.034	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.025	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.024	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.023	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.021	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.021	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.008	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.004	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.004	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.003	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	9E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	8E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	8E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	8E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	7E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.96	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.71	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.23	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.18	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.18	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.14	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.11	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.11	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.081	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.06	1	Aquatic Life TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.058	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.045	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.04	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.038	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.03	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.028	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.027	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.027	1	Fish Specific TU	yes
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.019	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.006	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.005	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.005	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.004	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.003	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.003	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.002	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.002	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.002	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.001	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.001	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.001	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	8E-04	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	8E-04	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	7E-04	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	6E-04	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.1	1	White Sturgeon Specific TU	yes
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.076	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.026	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.02	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.019	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.014	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.012	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.01	1	White Sturgeon Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.008	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.006	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.006	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.004	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.004	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.004	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.003	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.003	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.003	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.002	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.021	1	Plant Specific TU	yes
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.006	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.005	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.004	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.004	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.004	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.003	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	9E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	9E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	6E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Manganese	0.47	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Manganese	0.39	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Manganese	0.31	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Manganese	0.27	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Manganese	0.26	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Manganese	0.24	1	Aquatic Life TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Manganese	0.16	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Manganese	0.16	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Manganese	0.016	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Manganese	0.008	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Manganese	0.004	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Manganese	0.003	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Manganese	0.003	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Manganese	0.002	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Manganese	0.002	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Manganese	0.001	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Manganese	7E-04	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Manganese	5E-04	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Manganese	0.045	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Manganese	0.044	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Manganese	0.038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Manganese	0.028	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Manganese	0.025	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Manganese	0.018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Manganese	0.018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Manganese	0.012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Manganese	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Manganese	0.001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Manganese	4E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Manganese	3E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Manganese	2E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Manganese	2E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Manganese	1E-04	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Manganese	9E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Manganese	6E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Manganese	5E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	1.1	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	0.072	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	0.062	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	0.059	1	Aquatic Life TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	0.059	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	0.04	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	0.031	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	0.027	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	0.021	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	0.02	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	0.018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	0.018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	0.018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	0.015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	0.012	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	0.012	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	0.011	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	0.009	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	0.81	1	White Sturgeon Specific TU	yes
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	0.054	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	0.049	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	0.045	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	0.044	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	0.03	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	0.024	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	0.021	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	0.016	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	0.015	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	0.014	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	0.014	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	0.013	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	0.011	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	0.01	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	0.009	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	0.008	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	0.007	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	0.5	1	Plant Specific TU	yes
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	0.042	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	0.033	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	0.033	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	0.026	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	0.016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	0.014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	0.014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	0.013	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	0.012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	0.011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	0.011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	0.01	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	0.009	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	0.009	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	0.009	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	0.009	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	0.007	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Alkalinity	58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Chloride	0.81	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Potassium	810	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Sodium	2000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Sulfate	12.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Alkalinity	55	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Chloride	0.65	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Potassium	1280	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Sodium	2250	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Sulfate	11.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Alkalinity	56	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Chloride	0.41	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Potassium	1840	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Sodium	2150	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Sulfate	17.3	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Alkalinity	57	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Chloride	0.64	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Potassium	1250	1	Dissolved Concentration (ug/l)	no

Table C3-2
ProUCL Input of Phase 3 Data Set for Porewater Dissolved Concentrations and TU Values for Approaches C and D
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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Sodium	2200	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Sulfate	12.3	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Alkalinity	55	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Chloride	0.63	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Potassium	730	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Sodium	1600	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Sulfate	11.2	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Alkalinity	76	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Chloride	0.49	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Potassium	1110	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Sodium	2050	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Sulfate	24.8	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Alkalinity	117	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Chloride	0.24	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Potassium	2630	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Sodium	2880	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Sulfate	28.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Alkalinity	65	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Chloride	3.92	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Potassium	7720	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Sodium	1910	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Sulfate	7.54	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Alkalinity	102	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Chloride	1.07	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Potassium	1940	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Sodium	2050	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Sulfate	3.83	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Alkalinity	74	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Chloride	5.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Potassium	2020	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Sodium	4380	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Sulfate	26.7	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Alkalinity	67	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Chloride	2.05	1	Dissolved Concentration (mg/l)	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Potassium	2000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Sodium	4250	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Sulfate	21	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Alkalinity	79	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Chloride	4.58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Potassium	2700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Sodium	2740	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Sulfate	35.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Alkalinity	111	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Chloride	1.46	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Potassium	2880	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Sodium	3800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Sulfate	17.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Alkalinity	105	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Chloride	0.49	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Potassium	1340	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Sodium	2450	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Sulfate	17.8	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Alkalinity	55	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Chloride	0.24	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Potassium	800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Sodium	940	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Sulfate	8.13	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Alkalinity	50	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Chloride	0.16	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Potassium	780	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Sodium	1130	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Sulfate	8.67	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Alkalinity	58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Chloride	0.24	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Potassium	700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Sodium	5190	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Sulfate	11.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Alkalinity	47	1	Dissolved Concentration (mg/l)	no

Table C3-2
ProUCL Input of Phase 3 Data Set for Porewater Dissolved Concentrations and TU Values for Approaches C and D
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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Chloride	0.3	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Potassium	710	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Sodium	1770	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Sulfate	5.75	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	pH	7.18	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	DOC	0.595	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Hardness	63.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Calcium	18700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Magnesium	4080	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	pH	6.91	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	DOC	0.39	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Hardness	57.2	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Calcium	18800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Magnesium	2480	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	pH	6.67	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	DOC	0.28	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Hardness	62.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Calcium	20100	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Magnesium	2970	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	pH	7.22	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	DOC	0.41	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Hardness	59.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Calcium	18800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Magnesium	3080	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	pH	6.83	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	DOC	0.79	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Hardness	61	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Calcium	18000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Magnesium	3900	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	pH	6.86	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	DOC	0.07	0	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Hardness	97.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Calcium	29300	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Magnesium	5910	1	Dissolved Concentration (ug/l)	no

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ProUCL Input of Phase 3 Data Set for Porewater Dissolved Concentrations and TU Values for Approaches C and D
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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF007-PW-1-093019	pH	7.27	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	DOC	1.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Hardness	133	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Calcium	41000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Magnesium	7420	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	pH	6.65	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	DOC	1.54	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Hardness	72.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Calcium	22200	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Magnesium	4180	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	pH	6.95	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	DOC	1.94	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Hardness	91.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Calcium	29200	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Magnesium	4480	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	pH	7.11	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	DOC	0.91	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Hardness	94	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Calcium	28600	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Magnesium	5490	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	pH	6.97	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	DOC	0.41	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Hardness	81.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Calcium	26000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Magnesium	4060	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	pH	7.14	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	DOC	0.35	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Hardness	106	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Calcium	34000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Magnesium	5140	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Ph	7.33	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	DOC	0.81	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Hardness	112	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Calcium	32700	1	Dissolved Concentration (ug/l)	no

Table C3-2
ProUCL Input of Phase 3 Data Set for Porewater Dissolved Concentrations and TU Values for Approaches C and D
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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Magnesium	7260	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	pH	7.15	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	DOC	0.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Hardness	104	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Calcium	31400	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Magnesium	6160	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	pH	6.8	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	DOC	1.58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Hardness	57.9	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Calcium	17500	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Magnesium	3450	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	pH	7.09	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	DOC	0.55	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Hardness	53.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Calcium	16000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Magnesium	3280	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	pH	7.44	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	DOC	3.05	1	Dissolved Concentration (mg/l)	yes
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Hardness	58.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Calcium	17200	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Magnesium	3780	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	pH	6.67	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	DOC	0.88	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Hardness	47	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Calcium	14000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Magnesium	2920	1	Dissolved Concentration (ug/l)	no

Table C3-3
ProUCL Input of Field-Blank Adjusted Phase 3 Data Set for Porewater Dissolved Concentrations and TU Values for Approaches E and F
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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Aluminum	133	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Aluminum	49.5	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Aluminum	66.9	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Aluminum	55	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Aluminum	18	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Aluminum	56.3	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Aluminum	11	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Aluminum	18.2	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Aluminum	2.7	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Aluminum	2.3	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Aluminum	0.8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Aluminum	1.6	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Aluminum	0.8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Aluminum	0.8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Aluminum	0.8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Aluminum	0.8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Aluminum	0.8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Aluminum	0.8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.663	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.593	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.393	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.382	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.358	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.311	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.249	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.246	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.235	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.235	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.223	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	0.215	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	0.201	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	0.2	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	0.184	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.168	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	0.162	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	0.076	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.244	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.145	1	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.036	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.033	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.024	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.019	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.021	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.02	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.027	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.02	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.014	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.019	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.011	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.008	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.01	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.009	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.008	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.008	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	3.59	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	0.42	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	0.38	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	0.9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	0.63	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	0.55	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	0.24	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	0.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	0.08	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	0.2	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	0.27	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.46	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	1.29	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	0.04	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.03	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.01	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.01	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.01	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	5480	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	3230	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	868	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	432	1	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	260	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	170	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	78	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	29	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	25	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	11	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	6	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	1.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	1.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	1.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	1.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	1.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	1.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	1.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	1.24	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.877	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.142	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.156	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.256	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.124	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.195	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.043	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.042	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.027	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.009	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.009	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.009	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.009	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.009	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.009	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.009	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.009	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Manganese	606	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Manganese	707	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Manganese	716	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Manganese	400	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Manganese	291	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Manganese	450	1	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF016-PW-1-092519	Manganese	197	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Manganese	293	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Manganese	29.2	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Manganese	15.7	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Manganese	4.29	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Manganese	5.2	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Manganese	3.03	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Manganese	2.48	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Manganese	1.49	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Manganese	0.95	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Manganese	0.47	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Manganese	0.35	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	79.6	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	4.5	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	6	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	4.5	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	3.3	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	1.7	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	1.5	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	1.3	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	1.2	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	1.4	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	0.8	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	0.9	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	0.6	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	0.6	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	1	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	0.7	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	0.6	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	0.3	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Aluminum	0.4	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Aluminum	0.22	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Aluminum	0.21	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Aluminum	0.15	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Aluminum	0.13	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Aluminum	0.11	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Aluminum	0.029	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Aluminum	0.026	1	Aquatic Life TU	no

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2019 Phase 3 Sediment Study	REF010-PW-1-100419	Aluminum	0.0066	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Aluminum	0.0062	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Aluminum	0.0062	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Aluminum	0.0059	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Aluminum	0.0036	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Aluminum	0.003	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Aluminum	0.0027	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Aluminum	0.0024	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Aluminum	0.0018	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Aluminum	0.0015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Aluminum	0.032	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Aluminum	0.016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Aluminum	0.014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Aluminum	0.013	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Aluminum	0.012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Aluminum	0.0044	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Aluminum	0.0044	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Aluminum	0.0027	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Aluminum	0.00066	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Aluminum	0.00056	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Aluminum	0.00039	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Aluminum	0.0002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Aluminum	0.0002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Aluminum	0.0002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Aluminum	0.0002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Aluminum	0.0002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Aluminum	0.0002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Aluminum	0.0002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.017	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.01	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.0098	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.0092	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.008	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.0064	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.0063	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.006	1	Aquatic Life TU	no

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2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.0057	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	0.0055	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	0.0052	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	0.0051	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	0.0047	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.0043	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	0.0042	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	0.0019	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.00024	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.00021	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.00014	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.00014	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.00013	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.00011	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	8.9E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	8.8E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	8.4E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	8.4E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.00008	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	7.7E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	7.2E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	7.1E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	6.6E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.00006	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	5.8E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	2.7E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.008	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.0071	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.0047	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.0046	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.0043	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.0037	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.003	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.003	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.0028	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.0028	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.0027	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	0.0026	1	Benthic Invertebrate TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	0.0024	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	0.0024	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	0.0022	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	0.002	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	0.002	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	0.00092	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Antimony	0.0003	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Antimony	0.00027	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Antimony	0.00018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Antimony	0.00017	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Antimony	0.00016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Antimony	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Antimony	0.00011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Antimony	0.00011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Antimony	0.00011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Antimony	0.00011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Antimony	0.0001	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Antimony	9.8E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Antimony	9.1E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Antimony	9.1E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Antimony	8.4E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Antimony	7.6E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Antimony	7.4E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Antimony	3.5E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.44	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.21	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.08	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.069	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.051	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.046	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.043	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.042	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.035	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.032	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.027	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.026	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.016	1	Aquatic Life TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.014	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.013	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.011	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.009	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.06	1	White Sturgeon Specific TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.028	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.011	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.0097	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.0071	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.0066	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.006	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.0059	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.0047	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.0044	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.0038	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.0035	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.0031	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.0022	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.002	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.0018	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.0015	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.0012	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Cadmium	0.0044	1	Plant Specific TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Cadmium	0.0026	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Cadmium	0.00064	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Cadmium	0.00059	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Cadmium	0.00048	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Cadmium	0.00043	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Cadmium	0.00038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Cadmium	0.00036	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Cadmium	0.00036	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Cadmium	0.00034	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Cadmium	0.00034	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Cadmium	0.00025	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Cadmium	0.0002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Cadmium	0.00018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Cadmium	0.00016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Cadmium	0.00014	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Cadmium	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Cadmium	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	7	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	2.8	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	0.93	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	0.9	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	0.89	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	0.79	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	0.75	1	Fish Specific TU	yes
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	0.41	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	0.38	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	0.36	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	0.3	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	0.3	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.27	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	0.2	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	0.16	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	0.11	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	0.097	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	0.092	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	0.089	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	0.07	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	0.045	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	0.043	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	0.04	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	0.039	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	0.037	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.036	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.035	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	0.03	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.0077	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	0.0074	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.0045	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.0038	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.0038	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.001	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.00056	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.00053	1	Fish Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Copper	13	1	White Sturgeon Specific TU	yes
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Copper	5.8	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Copper	1.7	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Copper	1.7	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Copper	1.6	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Copper	1.4	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Copper	0.75	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Copper	0.74	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Copper	0.73	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Copper	0.53	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Copper	0.52	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Copper	0.47	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Copper	0.33	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Copper	0.14	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Copper	0.064	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Copper	0.014	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Copper	0.0083	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Copper	0.0067	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	6.6	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	5.5	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	5.4	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	3.2	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	2.7	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	1.5	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	0.87	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	0.43	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.33	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.32	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.31	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.27	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.26	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.17	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.078	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.049	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.029	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.025	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.015	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.014	1	Fish Specific TU	no

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2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.013	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.011	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.0083	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.0075	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.0075	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.006	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.0045	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.0044	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.0015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.0015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.0015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.0015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.0015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.0015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.0015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	6.4	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	4.2	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	1.5	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	1	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Iron	0.46	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.36	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Iron	0.27	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.22	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.17	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Iron	0.072	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.069	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.045	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Iron	0.036	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.026	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Iron	0.022	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Iron	0.014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.01	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Iron	0.0065	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.0047	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.0042	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.0039	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.0038	1	Benthic Invertebrate TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.0038	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.0032	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.0028	1	Benthic Invertebrate TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Iron	0.0024	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Iron	0.0021	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Iron	0.00092	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Iron	0.0005	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Iron	0.00012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Iron	0.00012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Iron	0.00012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Iron	0.00012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Iron	0.00012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Iron	0.00012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Iron	0.00012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.89	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.63	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.13	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.1	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.098	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.095	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.07	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.031	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.025	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.017	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.012	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.011	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.0064	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.006	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.005	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.0045	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.0039	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.0038	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.0036	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.0033	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.0029	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.0027	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.0027	1	Fish Specific TU	no

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2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.002	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.00084	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.00035	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.00032	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.00018	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.00017	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.00016	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.00014	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.00012	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.00011	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.0001	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	9.3E-05	1	Fish Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.095	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.067	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.014	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.011	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.01	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.0095	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.0065	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.0033	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.0011	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.0011	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.00069	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.00064	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.0006	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.00053	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.00045	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.00039	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.00036	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.00032	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Lead	0.02	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Lead	0.014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Lead	0.0041	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Lead	0.0031	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Lead	0.0025	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Lead	0.0023	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Lead	0.002	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Lead	0.00068	1	Plant Specific TU	no

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2019 Phase 3 Sediment Study	REF007-PW-1-093019	Lead	0.00067	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Lead	0.00043	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Lead	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Lead	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Lead	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Lead	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Lead	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Lead	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Lead	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Lead	0.00014	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Manganese	0.47	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Manganese	0.39	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Manganese	0.31	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Manganese	0.27	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Manganese	0.26	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Manganese	0.24	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Manganese	0.16	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Manganese	0.16	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Manganese	0.015	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Manganese	0.0075	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Manganese	0.0033	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Manganese	0.0026	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Manganese	0.0023	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Manganese	0.0019	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Manganese	0.0011	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Manganese	0.00079	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Manganese	0.00036	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Manganese	0.00022	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Manganese	0.045	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Manganese	0.044	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Manganese	0.038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Manganese	0.028	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Manganese	0.025	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Manganese	0.018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Manganese	0.018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Manganese	0.012	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Manganese	0.0018	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Manganese	0.00098	1	Plant Specific TU	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Manganese	0.00032	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Manganese	0.00027	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Manganese	0.00019	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Manganese	0.00016	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Manganese	9.3E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Manganese	5.9E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Manganese	2.9E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Manganese	2.2E-05	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	1.1	1	Aquatic Life TU	yes
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	0.061	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	0.055	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	0.05	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	0.047	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	0.027	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	0.02	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	0.016	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	0.012	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	0.012	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	0.011	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	0.0082	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	0.0077	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	0.0075	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	0.0067	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	0.0058	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	0.0046	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	0.0025	1	Aquatic Life TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	0.8	1	White Sturgeon Specific TU	yes
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	0.046	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	0.043	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	0.038	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	0.036	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	0.021	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	0.015	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	0.013	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	0.0092	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	0.0088	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	0.008	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	0.006	1	White Sturgeon Specific TU	no

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2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	0.006	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	0.0055	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	0.005	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	0.0047	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	0.0035	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	0.0019	1	White Sturgeon Specific TU	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Zinc	0.5	1	Plant Specific TU	yes
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Zinc	0.038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Zinc	0.028	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Zinc	0.028	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Zinc	0.021	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Zinc	0.011	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Zinc	0.0094	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Zinc	0.0088	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Zinc	0.0081	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Zinc	0.0075	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Zinc	0.0062	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Zinc	0.0056	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Zinc	0.005	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Zinc	0.0044	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Zinc	0.0038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Zinc	0.0038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Zinc	0.0038	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Zinc	0.0019	1	Plant Specific TU	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Alkalinity	51	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Chloride	0.81	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Potassium	810	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Sodium	1750	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Sulfate	12.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Alkalinity	48	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Chloride	0.65	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Potassium	1280	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Sodium	2000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Sulfate	11.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Alkalinity	49	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Chloride	0.41	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Potassium	1840	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Sodium	1900	1	Dissolved Concentration (ug/l)	no

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2019 Phase 3 Sediment Study	REF003-PW-1-092819	Sulfate	17.3	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Alkalinity	50	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Chloride	0.64	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Potassium	1250	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Sodium	1950	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Sulfate	12.3	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Alkalinity	48	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Chloride	0.63	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Potassium	730	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Sodium	1350	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Sulfate	11.2	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Alkalinity	69	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Chloride	0.49	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Potassium	1110	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Sodium	1800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Sulfate	24.8	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Alkalinity	110	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Chloride	0.24	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Potassium	2630	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Sodium	2630	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Sulfate	28.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Alkalinity	58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Chloride	3.92	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Potassium	7720	1	Dissolved Concentration (ug/l)	yes
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Sodium	1660	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Sulfate	7.54	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Alkalinity	95	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Chloride	1.07	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Potassium	1940	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Sodium	1800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Sulfate	3.83	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Alkalinity	67	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Chloride	5.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Potassium	2020	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Sodium	4130	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Sulfate	26.7	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Alkalinity	60	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Chloride	2.05	1	Dissolved Concentration (mg/l)	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Potassium	2000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Sodium	4000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Sulfate	21	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Alkalinity	72	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Chloride	4.58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Potassium	2700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Sodium	2490	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Sulfate	35.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Alkalinity	104	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Chloride	1.46	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Potassium	2880	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Sodium	3550	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Sulfate	17.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Alkalinity	98	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Chloride	0.49	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Potassium	1340	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Sodium	2200	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Sulfate	17.8	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Alkalinity	48	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Chloride	0.24	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Potassium	800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Sodium	690	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Sulfate	8.13	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Alkalinity	43	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Chloride	0.16	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Potassium	780	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Sodium	880	0	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Sulfate	8.67	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Alkalinity	51	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Chloride	0.24	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Potassium	700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Sodium	4940	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Sulfate	11.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Alkalinity	40	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Chloride	0.3	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Potassium	710	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Sodium	1520	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Sulfate	5.75	1	Dissolved Concentration (mg/l)	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF001-PW-1-092719	pH	7.18	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	DOC	0.595	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Hardness	63.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Calcium	18400	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF001-PW-1-092719	Magnesium	4010	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	pH	6.91	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	DOC	0.39	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Hardness	57.2	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Calcium	18500	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF002-PW-1-092719	Magnesium	2410	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	pH	6.67	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	DOC	0.28	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Hardness	62.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Calcium	19800	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF003-PW-1-092819	Magnesium	2900	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	pH	7.22	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	DOC	0.41	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Hardness	59.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Calcium	18500	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF004-PW-1-092819	Magnesium	3010	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	pH	6.83	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	DOC	0.79	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Hardness	61	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Calcium	17700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF005-PW-1-100119	Magnesium	3830	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	pH	6.86	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	DOC	0.07	0	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Hardness	97.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Calcium	29000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF006-PW-1-100319	Magnesium	5840	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	pH	7.27	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	DOC	1.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Hardness	133	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Calcium	40700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF007-PW-1-093019	Magnesium	7350	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	pH	6.65	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	DOC	1.54	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Hardness	72.6	1	Dissolved Concentration (mg/l)	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Calcium	21900	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF008-PW-1-100119	Magnesium	4110	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	pH	6.95	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	DOC	1.94	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Hardness	91.4	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Calcium	29000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF009A-PW-1-100319	Magnesium	4400	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	pH	7.11	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	DOC	0.91	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Hardness	94	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Calcium	28300	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF010-PW-1-100419	Magnesium	5420	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	pH	6.97	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	DOC	0.41	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Hardness	81.6	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Calcium	25700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF011-PW-1-100219	Magnesium	3990	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	pH	7.14	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	DOC	0.35	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Hardness	106	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Calcium	33700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF012-PW-1-100219	Magnesium	5070	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	pH	7.33	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	DOC	0.81	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Hardness	112	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Calcium	32400	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF013-PW-1-092619	Magnesium	7190	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	pH	7.15	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	DOC	0.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Hardness	104	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Calcium	31000	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF014-PW-1-092419	Magnesium	6090	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	pH	6.8	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	DOC	1.58	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Hardness	57.9	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Calcium	17200	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF015-PW-1-092419	Magnesium	3380	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	pH	7.09	1	Dissolved Concentration (su)	no

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Study ID	Sample ID	Analyte	Value	Detect	Group	Outlier?
2019 Phase 3 Sediment Study	REF016-PW-1-092519	DOC	0.55	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Hardness	53.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Calcium	15700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF016-PW-1-092519	Magnesium	3210	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	pH	7.44	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	DOC	3.05	1	Dissolved Concentration (mg/l)	yes
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Hardness	58.5	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Calcium	16900	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF017-PW-1-092519	Magnesium	3710	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	pH	6.67	1	Dissolved Concentration (su)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	DOC	0.88	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Hardness	47	1	Dissolved Concentration (mg/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Calcium	13700	1	Dissolved Concentration (ug/l)	no
2019 Phase 3 Sediment Study	REF018-PW-1-092519	Magnesium	2850	1	Dissolved Concentration (ug/l)	no

Table C3-4
ProUCL Output for Porewater BTVs and BTV HQs, Approach A
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Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 9/14/2023 1:01:01 PM
From File	porewater_utl_input_base.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

concDL (alkalinity_mg/l_na_concentration_na)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	18
Minimum	47	First Quartile	56
Second Largest	117	Median	65
Maximum	134	Third Quartile	102
Mean	75.59	SD	25.88
Coefficient of Variation	0.342	Skewness	0.926
Mean of logged Data	4.275	SD of logged Data	0.318

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.854	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.201	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	136.9	90% Percentile (z)	108.8
	95% UPL (t)	121.3	95% Percentile (z)	118.2
	95% USL	142.4	99% Percentile (z)	135.8

Gamma GOF Test

A-D Test Statistic	1.121	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.195	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.189	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.05	k star (bias corrected MLE)	8.645

Theta hat (MLE)	7.523	Theta star (bias corrected MLE)	8.744
nu hat (MLE)	422	nu star (bias corrected)	363.1
MLE Mean (bias corrected)	75.59	MLE Sd (bias corrected)	25.71

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	123.9	90% Percentile	109.8
95% Hawkins Wixley (HW) Approx. Gamma UPL	124.4	95% Percentile	122.2
95% WH Approx. Gamma UTL with 95% Coverage	145.6	99% Percentile	147.8
95% HW Approx. Gamma UTL with 95% Coverage	147.2		
95% WH USL	153.7	95% HW USL	155.8

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.895	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.184	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	152.8	90% Percentile (z)	108
95% UPL (t)	126	95% Percentile (z)	121.3
95% USL	163.3	99% Percentile (z)	150.6

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	134
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	134	95% BCA Bootstrap UTL with 95% Coverage	134
95% UPL	132.3	90% Percentile	111
90% Chebyshev UPL	155	95% Percentile	117
95% Chebyshev UPL	191	99% Percentile	130.6
95% USL	134		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	8	Number of Non-Detects	14
Number of Distinct Detects	8	Number of Distinct Non-Detects	13
Minimum Detect	59.2	Minimum Non-Detect	4
Maximum Detect	265	Maximum Non-Detect	30.9
Variance Detected	5650	Percent Non-Detects	63.64%
Mean Detected	115.5	SD Detected	75.16
Mean of Detected Logged Data	4.592	SD of Detected Logged Data	0.573

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.78	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.749	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.323	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.333	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	44.55	KM SD	68.37
95% UTL95% Coverage	205.1	95% KM UPL (t)	164.8
90% KM Percentile (z)	132.2	95% KM Percentile (z)	157
99% KM Percentile (z)	203.6	95% KM USL	222.5

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	46.2	SD	69.08
95% UTL95% Coverage	208.5	95% UPL (t)	167.7
90% Percentile (z)	134.7	95% Percentile (z)	159.8
99% Percentile (z)	206.9	95% USL	226

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.791	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.72	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.321	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.296	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.341	k star (bias corrected MLE)	2.171
Theta hat (MLE)	34.57	Theta star (bias corrected MLE)	53.19
nu hat (MLE)	53.45	nu star (bias corrected)	34.74
MLE Mean (bias corrected)	115.5		

MLE Sd (bias corrected)	78.38	95% Percentile of Chisquare (2kstar)	10.04

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	42.01
Maximum	265	Median	0.01
SD	71.53	CV	1.703
k hat (MLE)	0.153	k star (bias corrected MLE)	0.163
Theta hat (MLE)	274.1	Theta star (bias corrected MLE)	258.2
nu hat (MLE)	6.744	nu star (bias corrected)	7.158
MLE Mean (bias corrected)	42.01	MLE Sd (bias corrected)	104.1
95% Percentile of Chisquare (2kstar)	1.761	90% Percentile	125.8
95% Percentile	227.4	99% Percentile	517.6

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	371.6	502.3	95% Approx. Gamma UPL	200	228.2
95% Gamma USL	468.5	676			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	44.55	SD (KM)	68.37
Variance (KM)	4674	SE of Mean (KM)	15.58
k hat (KM)	0.424	k star (KM)	0.397
nu hat (KM)	18.68	nu star (KM)	17.46
theta hat (KM)	104.9	theta star (KM)	112.2
80% gamma percentile (KM)	71.83	90% gamma percentile (KM)	126
95% gamma percentile (KM)	185.6	99% gamma percentile (KM)	335.5

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	268.8	296.9	95% Approx. Gamma UPL	167.9	172.8
95% KM Gamma Percentile	151.8	154.1	95% Gamma USL	322.5	367.2

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.824	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.851	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.296	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.265	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	52.03	Mean in Log Scale	3.418
SD in Original Scale	65.56	SD in Log Scale	0.974
95% UTL95% Coverage	300.7	95% BCA UTL95% Coverage	260.9
95% Bootstrap (%) UTL95% Coverage	265	95% UPL (t)	169.3
90% Percentile (z)	106.3	95% Percentile (z)	151.5
99% Percentile (z)	294.1	95% USL	385

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.552	95% KM UTL (Lognormal)95% Coverage	519.8
KM SD of Logged Data	1.576	95% KM UPL (Lognormal)	205.3
95% KM Percentile Lognormal (z)	171.4	95% KM USL (Lognormal)	775.3

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	46.2	Mean in Log Scale	2.725
SD in Original Scale	69.08	SD in Log Scale	1.578
95% UTL95% Coverage	621.2	95% UPL (t)	245
90% Percentile (z)	115.3	95% Percentile (z)	204.5
99% Percentile (z)	599.4	95% USL	927.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	265
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	252.6
95% USL	265	95% KM Chebyshev UPL	349.3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	8	Number of Non-Detects	14
Number of Distinct Detects	8	Number of Distinct Non-Detects	13
Minimum Detect	59.2	Minimum Non-Detect	4
Maximum Detect	265	Maximum Non-Detect	30.9

Variance Detected	5650	Percent Non-Detects	63.64%
Mean Detected	115.5	SD Detected	75.16
Mean of Detected Logged Data	4.592	SD of Detected Logged Data	0.573

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Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.78	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.749	Detected Data appear Normal at 1% Significance Level
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Detected Data appear Normal at 1% Significance Level

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KM Mean	44.55	KM SD	68.37
95% UTL95% Coverage	205.1	95% KM UPL (t)	164.8
90% KM Percentile (z)	132.2	95% KM Percentile (z)	157
99% KM Percentile (z)	203.6	95% KM USL	222.5

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	46.2	SD	69.08
95% UTL95% Coverage	208.5	95% UPL (t)	167.7
90% Percentile (z)	134.7	95% Percentile (z)	159.8
99% Percentile (z)	206.9	95% USL	226

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A-D Test Statistic	0.791	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.72	Data Not Gamma Distributed at 5% Significance Level
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5% K-S Critical Value	0.296	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.341	k star (bias corrected MLE)	2.171
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MLE Mean (bias corrected)	115.5		
MLE Sd (bias corrected)	78.38	95% Percentile of Chisquare (2kstar)	10.04

Gamma ROS Statistics using Imputed Non-Detects

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For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	42.01
Maximum	265	Median	0.01
SD	71.53	CV	1.703
k hat (MLE)	0.153	k star (bias corrected MLE)	0.163
Theta hat (MLE)	274.1	Theta star (bias corrected MLE)	258.2
nu hat (MLE)	6.744	nu star (bias corrected)	7.158
MLE Mean (bias corrected)	42.01	MLE Sd (bias corrected)	104.1
95% Percentile of Chisquare (2kstar)	1.761	90% Percentile	125.8
95% Percentile	227.4	99% Percentile	517.6

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	371.6	502.3	95% Approx. Gamma UPL	200	228.2
95% Gamma USL	468.5	676			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	44.55	SD (KM)	68.37
Variance (KM)	4674	SE of Mean (KM)	15.58
k hat (KM)	0.424	k star (KM)	0.397
nu hat (KM)	18.68	nu star (KM)	17.46
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Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	52.03	Mean in Log Scale	3.418
SD in Original Scale	65.56	SD in Log Scale	0.974
95% UTL95% Coverage	300.7	95% BCA UTL95% Coverage	265
95% Bootstrap (%) UTL95% Coverage	265	95% UPL (t)	169.3
90% Percentile (z)	106.3	95% Percentile (z)	151.5

99% Percentile (z)	294.1	95% USL	385

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.552	95% KM UTL (Lognormal)95% Coverage	519.8
KM SD of Logged Data	1.576	95% KM UPL (Lognormal)	205.3
95% KM Percentile Lognormal (z)	171.4	95% KM USL (Lognormal)	775.3

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	46.2	Mean in Log Scale	2.725
SD in Original Scale	69.08	SD in Log Scale	1.578
95% UTL95% Coverage	621.2	95% UPL (t)	245
90% Percentile (z)	115.3	95% Percentile (z)	204.5
99% Percentile (z)	599.4	95% USL	927.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	265
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	252.6
95% USL	265	95% KM Chebyshev UPL	349.3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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concDL (aluminum_ug/l_awqc_concentration_fish)

General Statistics

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Number of Distinct Observations	21		
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DL/2 Substitution Background Statistics Assuming Normal Distribution

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95% UTL95% Coverage	208.5	95% UPL (t)	167.7
90% Percentile (z)	134.7	95% Percentile (z)	159.8
99% Percentile (z)	206.9	95% USL	226

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Gamma GOF Tests on Detected Observations Only

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5% A-D Critical Value	0.72	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.321	**Kolmogorov-Smirnov GOF**	
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Data Not Gamma Distributed at 5% Significance Level

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k hat (MLE)	3.341	k star (bias corrected MLE)	2.171
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MLE Mean (bias corrected)	115.5		
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Maximum	265	Median	0.01
SD	71.53	CV	1.703
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nu hat (MLE)	6.744	nu star (bias corrected)	7.158
MLE Mean (bias corrected)	42.01	MLE Sd (bias corrected)	104.1
95% Percentile of Chisquare (2kstar)	1.761	90% Percentile	125.8
95% Percentile	227.4	99% Percentile	517.6

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	371.6	502.3	95% Approx. Gamma UPL	200	228.2
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Mean (KM)	44.55	SD (KM)	68.37
Variance (KM)	4674	SE of Mean (KM)	15.58
k hat (KM)	0.424	k star (KM)	0.397
nu hat (KM)	18.68	nu star (KM)	17.46
theta hat (KM)	104.9	theta star (KM)	112.2
80% gamma percentile (KM)	71.83	90% gamma percentile (KM)	126
95% gamma percentile (KM)	185.6	99% gamma percentile (KM)	335.5

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	WH	HW		WH	HW
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95% KM Gamma Percentile	151.8	154.1	95% Gamma USL	322.5	367.2

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Shapiro Wilk Test Statistic	0.824	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.851	Data Not Lognormal at 10% Significance Level
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10% Lilliefors Critical Value	0.265	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	52.03	Mean in Log Scale	3.418
SD in Original Scale	65.56	SD in Log Scale	0.974
95% UTL95% Coverage	300.7	95% BCA UTL95% Coverage	265
95% Bootstrap (%) UTL95% Coverage	265	95% UPL (t)	169.3
90% Percentile (z)	106.3	95% Percentile (z)	151.5
99% Percentile (z)	294.1	95% USL	385

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.552	95% KM UTL (Lognormal)95% Coverage	519.8
KM SD of Logged Data	1.576	95% KM UPL (Lognormal)	205.3
95% KM Percentile Lognormal (z)	171.4	95% KM USL (Lognormal)	775.3

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	46.2	Mean in Log Scale	2.725
SD in Original Scale	69.08	SD in Log Scale	1.578
95% UTL95% Coverage	621.2	95% UPL (t)	245
90% Percentile (z)	115.3	95% Percentile (z)	204.5
99% Percentile (z)	599.4	95% USL	927.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	265
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	252.6
95% USL	265	95% KM Chebyshev UPL	349.3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	19
Minimum	0.012	First Quartile	0.024
Second Largest	0.27	Median	0.0435
Maximum	0.43	Third Quartile	0.195
Mean	0.108	SD	0.115
Coefficient of Variation	1.07	Skewness	1.334
Mean of logged Data	-2.802	SD of logged Data	1.113

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.785	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.378	90% Percentile (z)		0.255
	95% UPL (t)	0.31	95% Percentile (z)		0.297
	95% USL	0.407	99% Percentile (z)		0.375

Gamma GOF Test

A-D Test Statistic	1.127	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.771	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.205	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.191	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.008	k star (bias corrected MLE)	0.901
Theta hat (MLE)	0.107	Theta star (bias corrected MLE)	0.119
nu hat (MLE)	44.36	nu star (bias corrected)	39.65
MLE Mean (bias corrected)	0.108	MLE Sd (bias corrected)	0.113

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.347	90% Percentile		0.254
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.36	95% Percentile		0.334
95% WH Approx. Gamma UTL with	95% Coverage	0.507	99% Percentile		0.522
95% HW Approx. Gamma UTL with	95% Coverage	0.551			
	95% WH USL	0.589	95% HW USL		0.653

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.916	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.154	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.829	90% Percentile (z)		0.253
	95% UPL (t)	0.43	95% Percentile (z)		0.379
	95% USL	1.1	99% Percentile (z)		0.809

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	0.43
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.43	95% BCA Bootstrap UTL with	95% Coverage	0.422

95% UPL	0.406	90% Percentile	0.24
90% Chebyshev UPL	0.46	95% Percentile	0.269
95% Chebyshev UPL	0.62	99% Percentile	0.396
95% USL	0.43		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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concDL (aluminum_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	19
Minimum	0.012	First Quartile	0.024
Second Largest	0.27	Median	0.0435
Maximum	0.43	Third Quartile	0.195
Mean	0.108	SD	0.115
Coefficient of Variation	1.07	Skewness	1.334
Mean of logged Data	-2.802	SD of logged Data	1.113

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.785	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.378	90% Percentile (z)	0.255
	95% UPL (t)	0.31	95% Percentile (z)	0.297
	95% USL	0.407	99% Percentile (z)	0.375

Gamma GOF Test

A-D Test Statistic	1.127	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.771	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.205	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.191	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.008	k star (bias corrected MLE)	0.901
Theta hat (MLE)	0.107	Theta star (bias corrected MLE)	0.119
nu hat (MLE)	44.36	nu star (bias corrected)	39.65
MLE Mean (bias corrected)	0.108	MLE Sd (bias corrected)	0.113

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.347	90% Percentile	0.254
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.36	95% Percentile	0.334
95% WH Approx. Gamma UTL with 95% Coverage	0.507	99% Percentile	0.522
95% HW Approx. Gamma UTL with 95% Coverage	0.551		
95% WH USL	0.589	95% HW USL	0.653

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.916	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.154	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.829	90% Percentile (z)	0.253
95% UPL (t)	0.43	95% Percentile (z)	0.379
95% USL	1.1	99% Percentile (z)	0.809

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.43
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.43	95% BCA Bootstrap UTL with 95% Coverage	0.422
95% UPL	0.406	90% Percentile	0.24
90% Chebyshev UPL	0.46	95% Percentile	0.269
95% Chebyshev UPL	0.62	99% Percentile	0.396
95% USL	0.43		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	19
Minimum	0.012	First Quartile	0.024
Second Largest	0.27	Median	0.0435
Maximum	0.43	Third Quartile	0.195
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Critical Values for Background Threshold Values (BTVs)

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1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
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1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

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Data Not Gamma Distributed at 5% Significance Level

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nu hat (MLE)	44.36	nu star (bias corrected)	39.65
MLE Mean (bias corrected)	0.108	MLE Sd (bias corrected)	0.113

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.347	90% Percentile	0.254
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95% WH Approx. Gamma UTL with	95% Coverage	0.507	99% Percentile	0.522
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	95% WH USL	0.589	95% HW USL	0.653

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95% UTL with	95% Coverage	0.829	90% Percentile (z)		0.253
	95% UPL (t)	0.43	95% Percentile (z)		0.379
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Nonparametric Distribution Free Background Statistics

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Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	0.43
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.43	95% BCA Bootstrap UTL with	95% Coverage	0.422
	95% UPL	0.406	90% Percentile		0.24
	90% Chebyshev UPL	0.46	95% Percentile		0.269
	95% Chebyshev UPL	0.62	99% Percentile		0.396
	95% USL	0.43			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	20		
Number of Detects	9	Number of Non-Detects	13
Number of Distinct Detects	8	Number of Distinct Non-Detects	12
Minimum Detect	0.222	Minimum Non-Detect	0.076
Maximum Detect	0.736	Maximum Non-Detect	0.249
Variance Detected	0.03	Percent Non-Detects	59.09%
Mean Detected	0.449	SD Detected	0.173
Mean of Detected Logged Data	-0.867	SD of Detected Logged Data	0.385

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.899	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.764	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.316	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.232	KM SD	0.21
95% UTL95% Coverage	0.724	95% KM UPL (t)	0.601
90% KM Percentile (z)	0.501	95% KM Percentile (z)	0.577
99% KM Percentile (z)	0.72	95% KM USL	0.778

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.242	SD	0.207
95% UTL95% Coverage	0.728	95% UPL (t)	0.606
90% Percentile (z)	0.507	95% Percentile (z)	0.582
99% Percentile (z)	0.723	95% USL	0.781

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.44	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.722	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.262	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.28	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	7.788	k star (bias corrected MLE)	5.266
Theta hat (MLE)	0.0576	Theta star (bias corrected MLE)	0.0852
nu hat (MLE)	140.2	nu star (bias corrected)	94.79
MLE Mean (bias corrected)	0.449		
MLE Sd (bias corrected)	0.196	95% Percentile of Chisquare (2kstar)	19.04

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.197
Maximum	0.736	Median	0.0331
SD	0.24	CV	1.22
k hat (MLE)	0.533	k star (bias corrected MLE)	0.49

Theta hat (MLE)	0.37	Theta star (bias corrected MLE)	0.402
nu hat (MLE)	23.44	nu star (bias corrected)	21.58
MLE Mean (bias corrected)	0.197	MLE Sd (bias corrected)	0.281
95% Percentile of Chisquare (2kstar)	3.794	90% Percentile	0.535
95% Percentile	0.762	99% Percentile	1.322

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.26	1.479	95% Approx. Gamma UPL	0.791	0.859
95% Gamma USL	1.508	1.831			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.232	SD (KM)	0.21
Variance (KM)	0.0439	SE of Mean (KM)	0.0478
k hat (KM)	1.228	k star (KM)	1.091
nu hat (KM)	54.04	nu star (KM)	48
theta hat (KM)	0.189	theta star (KM)	0.213
80% gamma percentile (KM)	0.371	90% gamma percentile (KM)	0.523
95% gamma percentile (KM)	0.675	99% gamma percentile (KM)	1.024

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.904	0.954	95% Approx. Gamma UPL	0.649	0.662
95% KM Gamma Percentile	0.606	0.614	95% Gamma USL	1.032	1.105

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.252	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.265	Mean in Log Scale	-1.532
SD in Original Scale	0.19	SD in Log Scale	0.619
95% UTL95% Coverage	0.926	95% BCA UTL95% Coverage	0.736
95% Bootstrap (%) UTL95% Coverage	0.736	95% UPL (t)	0.643
90% Percentile (z)	0.478	95% Percentile (z)	0.599
99% Percentile (z)	0.913	95% USL	1.084

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.85	95% KM UTL (Lognormal)95% Coverage	1.205
KM SD of Logged Data	0.867	95% KM UPL (Lognormal)	0.723
95% KM Percentile Lognormal (z)	0.654	95% KM USL (Lognormal)	1.501

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.242	Mean in Log Scale	-1.746
SD in Original Scale	0.207	SD in Log Scale	0.821
95% UTL95% Coverage	1.2	95% UPL (t)	0.739
90% Percentile (z)	0.499	95% Percentile (z)	0.673
99% Percentile (z)	1.178	95% USL	1.478

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	0.736
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.725
95% USL	0.736	95% KM Chebyshev UPL	1.166

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	20		
Number of Detects	9	Number of Non-Detects	13
Number of Distinct Detects	8	Number of Distinct Non-Detects	12
Minimum Detect	0.222	Minimum Non-Detect	0.076
Maximum Detect	0.736	Maximum Non-Detect	0.249
Variance Detected	0.03	Percent Non-Detects	59.09%
Mean Detected	0.449	SD Detected	0.173
Mean of Detected Logged Data	-0.867	SD of Detected Logged Data	0.385

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.899	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.764	Detected Data appear Normal at 1% Significance Level	
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KM Mean	0.232	KM SD	0.21
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90% KM Percentile (z)	0.501	95% KM Percentile (z)	0.577
99% KM Percentile (z)	0.72	95% KM USL	0.778

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.242	SD	0.207
95% UTL95% Coverage	0.728	95% UPL (t)	0.606
90% Percentile (z)	0.507	95% Percentile (z)	0.582
99% Percentile (z)	0.723	95% USL	0.781

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A-D Test Statistic	0.44	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.722	Detected data appear Gamma Distributed at 5% Significance Level
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5% K-S Critical Value	0.28	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	7.788	k star (bias corrected MLE)	5.266
Theta hat (MLE)	0.0576	Theta star (bias corrected MLE)	0.0852
nu hat (MLE)	140.2	nu star (bias corrected)	94.79
MLE Mean (bias corrected)	0.449		
MLE Sd (bias corrected)	0.196	95% Percentile of Chisquare (2kstar)	19.04

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

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Maximum	0.736	Median	0.0331
SD	0.24	CV	1.22
k hat (MLE)	0.533	k star (bias corrected MLE)	0.49
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nu hat (MLE)	23.44	nu star (bias corrected)	21.58
MLE Mean (bias corrected)	0.197	MLE Sd (bias corrected)	0.281
95% Percentile of Chisquare (2kstar)	3.794	90% Percentile	0.535
95% Percentile	0.762	99% Percentile	1.322

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.26	1.479	95% Approx. Gamma UPL	0.791	0.859
95% Gamma USL	1.508	1.831			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.232	SD (KM)	0.21
Variance (KM)	0.0439	SE of Mean (KM)	0.0478
k hat (KM)	1.228	k star (KM)	1.091
nu hat (KM)	54.04	nu star (KM)	48
theta hat (KM)	0.189	theta star (KM)	0.213
80% gamma percentile (KM)	0.371	90% gamma percentile (KM)	0.523
95% gamma percentile (KM)	0.675	99% gamma percentile (KM)	1.024

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.904	0.954	95% Approx. Gamma UPL	0.649	0.662
95% KM Gamma Percentile	0.606	0.614	95% Gamma USL	1.032	1.105

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Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 10% Significance Level
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10% Lilliefors Critical Value	0.252	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.265	Mean in Log Scale	-1.532
SD in Original Scale	0.19	SD in Log Scale	0.619
95% UTL95% Coverage	0.926	95% BCA UTL95% Coverage	0.736
95% Bootstrap (%) UTL95% Coverage	0.736	95% UPL (t)	0.643
90% Percentile (z)	0.478	95% Percentile (z)	0.599
99% Percentile (z)	0.913	95% USL	1.084

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KM Mean of Logged Data	-1.85	95% KM UTL (Lognormal)95% Coverage	1.205
KM SD of Logged Data	0.867	95% KM UPL (Lognormal)	0.723
95% KM Percentile Lognormal (z)	0.654	95% KM USL (Lognormal)	1.501

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.242	Mean in Log Scale	-1.746
SD in Original Scale	0.207	SD in Log Scale	0.821
95% UTL95% Coverage	1.2	95% UPL (t)	0.739
90% Percentile (z)	0.499	95% Percentile (z)	0.673

99% Percentile (z)	1.178	95% USL	1.478

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	0.736
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.725
95% USL	0.736	95% KM Chebyshev UPL	1.166

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concDL (antimony_ug/l_awqc_concentration_fish)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	20		
Number of Detects	9	Number of Non-Detects	13
Number of Distinct Detects	8	Number of Distinct Non-Detects	12
Minimum Detect	0.222	Minimum Non-Detect	0.076
Maximum Detect	0.736	Maximum Non-Detect	0.249
Variance Detected	0.03	Percent Non-Detects	59.09%
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Normal GOF Test on Detects Only

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1% Shapiro Wilk Critical Value	0.764	Detected Data appear Normal at 1% Significance Level	
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1% Lilliefors Critical Value	0.316	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.232	KM SD	0.21
95% UTL95% Coverage	0.724	95% KM UPL (t)	0.601
90% KM Percentile (z)	0.501	95% KM Percentile (z)	0.577

99% KM Percentile (z)	0.72	95% KM USL	0.778

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.242	SD	0.207
95% UTL95% Coverage	0.728	95% UPL (t)	0.606
90% Percentile (z)	0.507	95% Percentile (z)	0.582
99% Percentile (z)	0.723	95% USL	0.781

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Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.44	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.722	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.262	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.28	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	7.788	k star (bias corrected MLE)	5.266
Theta hat (MLE)	0.0576	Theta star (bias corrected MLE)	0.0852
nu hat (MLE)	140.2	nu star (bias corrected)	94.79
MLE Mean (bias corrected)	0.449		
MLE Sd (bias corrected)	0.196	95% Percentile of Chisquare (2kstar)	19.04

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.197
Maximum	0.736	Median	0.0331
SD	0.24	CV	1.22
k hat (MLE)	0.533	k star (bias corrected MLE)	0.49
Theta hat (MLE)	0.37	Theta star (bias corrected MLE)	0.402
nu hat (MLE)	23.44	nu star (bias corrected)	21.58
MLE Mean (bias corrected)	0.197	MLE Sd (bias corrected)	0.281
95% Percentile of Chisquare (2kstar)	3.794	90% Percentile	0.535
95% Percentile	0.762	99% Percentile	1.322

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.26	1.479	95% Approx. Gamma UPL	0.791	0.859
95% Gamma USL	1.508	1.831			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.232	SD (KM)	0.21
Variance (KM)	0.0439	SE of Mean (KM)	0.0478
k hat (KM)	1.228	k star (KM)	1.091
nu hat (KM)	54.04	nu star (KM)	48
theta hat (KM)	0.189	theta star (KM)	0.213
80% gamma percentile (KM)	0.371	90% gamma percentile (KM)	0.523
95% gamma percentile (KM)	0.675	99% gamma percentile (KM)	1.024

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.904	0.954	95% Approx. Gamma UPL	0.649	0.662
95% KM Gamma Percentile	0.606	0.614	95% Gamma USL	1.032	1.105

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.252	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.265	Mean in Log Scale	-1.532
SD in Original Scale	0.19	SD in Log Scale	0.619
95% UTL95% Coverage	0.926	95% BCA UTL95% Coverage	0.732
95% Bootstrap (%) UTL95% Coverage	0.736	95% UPL (t)	0.643
90% Percentile (z)	0.478	95% Percentile (z)	0.599
99% Percentile (z)	0.913	95% USL	1.084

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.85	95% KM UTL (Lognormal)95% Coverage	1.205
KM SD of Logged Data	0.867	95% KM UPL (Lognormal)	0.723
95% KM Percentile Lognormal (z)	0.654	95% KM USL (Lognormal)	1.501

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.242	Mean in Log Scale	-1.746
SD in Original Scale	0.207	SD in Log Scale	0.821
95% UTL95% Coverage	1.2	95% UPL (t)	0.739
90% Percentile (z)	0.499	95% Percentile (z)	0.673
99% Percentile (z)	1.178	95% USL	1.478

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	0.736
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.725
95% USL	0.736	95% KM Chebyshev UPL	1.166

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	18
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.017	Median	0.006
Maximum	0.019	Third Quartile	0.00965
Mean	0.00769	SD	0.00435
Coefficient of Variation	0.566	Skewness	1.444
Mean of logged Data	-5.002	SD of logged Data	0.524

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.832	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.253	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0179	90% Percentile (z)	0.0133
	95% UPL (t)	0.0153	95% Percentile (z)	0.0148
	95% USL	0.019	99% Percentile (z)	0.0178

Gamma GOF Test

A-D Test Statistic	0.788	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.208	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.913	k star (bias corrected MLE)	3.409
Theta hat (MLE)	0.00196	Theta star (bias corrected MLE)	0.00225
nu hat (MLE)	172.2	nu star (bias corrected)	150
MLE Mean (bias corrected)	0.00769	MLE Sd (bias corrected)	0.00416

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0159	90% Percentile	0.0133
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0161	95% Percentile	0.0156
95% WH Approx. Gamma UTL with 95% Coverage	0.02	99% Percentile	0.0205
95% HW Approx. Gamma UTL with 95% Coverage	0.0205		
95% WH USL	0.022	95% HW USL	0.0227

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.023	90% Percentile (z)	0.0132
95% UPL (t)	0.0169	95% Percentile (z)	0.0159
95% USL	0.0263	99% Percentile (z)	0.0228

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.019
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.019	95% BCA Bootstrap UTL with 95% Coverage	0.0189
95% UPL	0.0187	90% Percentile	0.0145
90% Chebyshev UPL	0.021	95% Percentile	0.0169
95% Chebyshev UPL	0.0271	99% Percentile	0.0186
95% USL	0.019		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	18
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.017	Median	0.006
Maximum	0.019	Third Quartile	0.00965
Mean	0.00769	SD	0.00435
Coefficient of Variation	0.566	Skewness	1.444
Mean of logged Data	-5.002	SD of logged Data	0.524

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.832	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.253	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0179	90% Percentile (z)	0.0133
95% UPL (t)	0.0153	95% Percentile (z)	0.0148
95% USL	0.019	99% Percentile (z)	0.0178

Gamma GOF Test

A-D Test Statistic	0.788	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.208	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.913	k star (bias corrected MLE)	3.409
Theta hat (MLE)	0.00196	Theta star (bias corrected MLE)	0.00225
nu hat (MLE)	172.2	nu star (bias corrected)	150
MLE Mean (bias corrected)	0.00769	MLE Sd (bias corrected)	0.00416

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0159	90% Percentile	0.0133
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0161	95% Percentile	0.0156
95% WH Approx. Gamma UTL with 95% Coverage	0.02	99% Percentile	0.0205
95% HW Approx. Gamma UTL with 95% Coverage	0.0205		
95% WH USL	0.022	95% HW USL	0.0227

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.023	90% Percentile (z)	0.0132
	95% UPL (t)	0.0169	95% Percentile (z)	0.0159
	95% USL	0.0263	99% Percentile (z)	0.0228

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with 95% Coverage	0.019
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.019	95% BCA Bootstrap UTL with 95% Coverage	0.0189
	95% UPL	0.0187	90% Percentile	0.0145
	90% Chebyshev UPL	0.021	95% Percentile	0.0169
	95% Chebyshev UPL	0.0271	99% Percentile	0.0186
	95% USL	0.019		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	18
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.017	Median	0.006
Maximum	0.019	Third Quartile	0.00965
Mean	0.00769	SD	0.00435
Coefficient of Variation	0.566	Skewness	1.444
Mean of logged Data	-5.002	SD of logged Data	0.524

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.832	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.253	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0179	90% Percentile (z)	0.0133
	95% UPL (t)	0.0153	95% Percentile (z)	0.0148
	95% USL	0.019	99% Percentile (z)	0.0178

Gamma GOF Test

A-D Test Statistic	0.788	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.208	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.913	k star (bias corrected MLE)	3.409
Theta hat (MLE)	0.00196	Theta star (bias corrected MLE)	0.00225
nu hat (MLE)	172.2	nu star (bias corrected)	150
MLE Mean (bias corrected)	0.00769	MLE Sd (bias corrected)	0.00416

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0159	90% Percentile	0.0133
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0161	95% Percentile	0.0156
95% WH Approx. Gamma UTL with	95% Coverage	0.02	99% Percentile	0.0205
95% HW Approx. Gamma UTL with	95% Coverage	0.0205		
	95% WH USL	0.022	95% HW USL	0.0227

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.023	90% Percentile (z)	0.0132
	95% UPL (t)	0.0169	95% Percentile (z)	0.0159
	95% USL	0.0263	99% Percentile (z)	0.0228

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.019
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.019	95% BCA Bootstrap UTL with 95% Coverage	0.0189
95% UPL	0.0187	90% Percentile	0.0145
90% Chebyshev UPL	0.021	95% Percentile	0.0169
95% Chebyshev UPL	0.0271	99% Percentile	0.0186
95% USL	0.019		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_taxa-specific benchmark_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	15
Minimum	9.2000E-4	First Quartile	0.0024
Second Largest	0.008	Median	0.0028
Maximum	0.0089	Third Quartile	0.00453
Mean	0.00361	SD	0.00204
Coefficient of Variation	0.566	Skewness	1.45
Mean of logged Data	-5.757	SD of logged Data	0.521

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.00841	90% Percentile (z)	0.00623
95% UPL (t)	0.00721	95% Percentile (z)	0.00697
95% USL	0.00893	99% Percentile (z)	0.00836

Gamma GOF Test

A-D Test Statistic	0.799	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.21	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.932	k star (bias corrected MLE)	3.426
Theta hat (MLE)	9.1812E-4	Theta star (bias corrected MLE)	0.00105
nu hat (MLE)	173	nu star (bias corrected)	150.7
MLE Mean (bias corrected)	0.00361	MLE Sd (bias corrected)	0.00195

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00745	90% Percentile	0.00623
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.00753	95% Percentile	0.0073
95% WH Approx. Gamma UTL with 95% Coverage	0.00937	99% Percentile	0.00961
95% HW Approx. Gamma UTL with 95% Coverage	0.00962		
95% WH USL	0.0103	95% HW USL	0.0106

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0108	90% Percentile (z)	0.00617
95% UPL (t)	0.00791	95% Percentile (z)	0.00745
95% USL	0.0123	99% Percentile (z)	0.0106

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.0089
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.0089	95% BCA Bootstrap UTL with 95% Coverage	0.0089
95% UPL	0.00877	90% Percentile	0.00686
90% Chebyshev UPL	0.00988	95% Percentile	0.00796
95% Chebyshev UPL	0.0127	99% Percentile	0.00871
95% USL	0.0089		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_taxa-specific benchmark_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	19
Minimum	2.7000E-5	First Quartile	7.1250E-5
Second Largest	2.4000E-4	Median	8.4000E-5
Maximum	2.6000E-4	Third Quartile	1.3750E-4
Mean	1.0745E-4	SD	6.0624E-5
Coefficient of Variation	0.564	Skewness	1.395
Mean of logged Data	-9.272	SD of logged Data	0.524

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.834	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.256	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.4986E-4	90% Percentile (z)	1.8515E-4
	95% UPL (t)	2.1412E-4	95% Percentile (z)	2.0717E-4
	95% USL	2.6524E-4	99% Percentile (z)	2.4849E-4

Gamma GOF Test

A-D Test Statistic	0.78	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.211	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.908	k star (bias corrected MLE)	3.405
Theta hat (MLE)	2.7497E-5	Theta star (bias corrected MLE)	3.1555E-5
nu hat (MLE)	171.9	nu star (bias corrected)	149.8
MLE Mean (bias corrected)	1.0745E-4	MLE Sd (bias corrected)	5.8230E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.2219E-4	90% Percentile	1.8553E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.2473E-4	95% Percentile	2.1758E-4
95% WH Approx. Gamma UTL with	95% Coverage	2.7972E-4	99% Percentile	2.8659E-4
95% HW Approx. Gamma UTL with	95% Coverage	2.8733E-4		
	95% WH USL	3.0727E-4	95% HW USL	3.1796E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.178	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	3.2238E-4	90% Percentile (z)	1.8417E-4
	95% UPL (t)	2.3663E-4	95% Percentile (z)	2.2283E-4
	95% USL	3.6828E-4	99% Percentile (z)	3.1858E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with 95% Coverage	2.6000E-4
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	2.6000E-4	95% BCA Bootstrap UTL with 95% Coverage	2.5900E-4
	95% UPL	2.5700E-4	90% Percentile	2.0300E-4
	90% Chebyshev UPL	2.9341E-4	95% Percentile	2.3850E-4
	95% Chebyshev UPL	3.7765E-4	99% Percentile	2.5580E-4
	95% USL	2.6000E-4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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concDL (cadmium_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	19	Number of Non-Detects	3
Number of Distinct Detects	16	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008

Maximum Detect	0.244	Maximum Non-Detect	0.008
Variance Detected	0.00386	Percent Non-Detects	13.64%
Mean Detected	0.0528	SD Detected	0.0621
Mean of Detected Logged Data	-3.436	SD of Detected Logged Data	0.964

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.7	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.863	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.343	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.229	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0467	KM SD	0.0583
95% UTL95% Coverage	0.184	95% KM UPL (t)	0.149
90% KM Percentile (z)	0.121	95% KM Percentile (z)	0.143
99% KM Percentile (z)	0.182	95% KM USL	0.198

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0461	SD	0.06
95% UTL95% Coverage	0.187	95% UPL (t)	0.152
90% Percentile (z)	0.123	95% Percentile (z)	0.145
99% Percentile (z)	0.186	95% USL	0.202

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.222	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.766	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.262	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.15	k star (bias corrected MLE)	1.003
Theta hat (MLE)	0.0459	Theta star (bias corrected MLE)	0.0526
nu hat (MLE)	43.69	nu star (bias corrected)	38.12
MLE Mean (bias corrected)	0.0528		
MLE Sd (bias corrected)	0.0527	95% Percentile of Chisquare (2kstar)	6.004

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

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MLE Mean (bias corrected)	0.047	MLE Sd (bias corrected)	0.0481
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The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.211	0.221	95% Approx. Gamma UPL	0.146	0.146
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Mean (KM)	0.0467	SD (KM)	0.0583
Variance (KM)	0.00339	SE of Mean (KM)	0.0128
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95% Approx. Gamma UTL with 95% Coverage	0.207	0.217	95% Approx. Gamma UPL	0.143	0.144
95% KM Gamma Percentile	0.132	0.132	95% Gamma USL	0.24	0.255

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.914	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.917	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.191	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.18	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0461	Mean in Log Scale	-3.741
SD in Original Scale	0.0601	SD in Log Scale	1.194
95% UTL95% Coverage	0.392	95% BCA UTL95% Coverage	0.244
95% Bootstrap (%) UTL95% Coverage	0.244	95% UPL (t)	0.194

90% Percentile (z)	0.11	95% Percentile (z)	0.169
99% Percentile (z)	0.382	95% USL	0.531

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.626	95% KM UTL (Lognormal)95% Coverage	0.275
KM SD of Logged Data	0.994	95% KM UPL (Lognormal)	0.153
95% KM Percentile Lognormal (z)	0.137	95% KM USL (Lognormal)	0.354

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0461	Mean in Log Scale	-3.72
SD in Original Scale	0.06	SD in Log Scale	1.154
95% UTL95% Coverage	0.365	95% UPL (t)	0.185
90% Percentile (z)	0.106	95% Percentile (z)	0.162
99% Percentile (z)	0.355	95% USL	0.489

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Order of Statistic, r	22	95% UTL with95% Coverage	0.244
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
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concDL (cadmium_ug/l_awqc_concentration_bmi)

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Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0461	Mean in Log Scale	-3.72
SD in Original Scale	0.06	SD in Log Scale	1.154
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concDL (cadmium_ug/l_awqc_concentration_fish)

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concDL (cadmium_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	22
Minimum	0.009	First Quartile	0.023
Second Largest	0.26	Median	0.0425
Maximum	0.44	Third Quartile	0.0795
Mean	0.0806	SD	0.103
Coefficient of Variation	1.281	Skewness	2.473
Mean of logged Data	-3.084	SD of logged Data	1.055

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.678	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.275	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.323	90% Percentile (z)	0.213
	95% UPL (t)	0.262	95% Percentile (z)	0.251
	95% USL	0.35	99% Percentile (z)	0.321

Gamma GOF Test

A-D Test Statistic	0.716	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.77	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.17	**Kolmogorov-Smirnov Gamma GOF Test**
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Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.017	k star (bias corrected MLE)	0.909
Theta hat (MLE)	0.0793	Theta star (bias corrected MLE)	0.0887
nu hat (MLE)	44.76	nu star (bias corrected)	39.99
MLE Mean (bias corrected)	0.0806	MLE Sd (bias corrected)	0.0846

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.255	90% Percentile	0.19
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.259	95% Percentile	0.25
95% WH Approx. Gamma UTL with 95% Coverage	0.371	99% Percentile	0.39
95% HW Approx. Gamma UTL with 95% Coverage	0.394		
95% WH USL	0.431	95% HW USL	0.465

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.971	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0955	**Lilliefors Lognormal GOF Test**
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Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.546	90% Percentile (z)	0.177
95% UPL (t)	0.293	95% Percentile (z)	0.26
95% USL	0.713	99% Percentile (z)	0.533

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.44
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.44	95% BCA Bootstrap UTL with 95% Coverage	0.44
95% UPL	0.413	90% Percentile	0.202
90% Chebyshev UPL	0.398	95% Percentile	0.258
95% Chebyshev UPL	0.541	99% Percentile	0.402
95% USL	0.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	22
Minimum	0.009	First Quartile	0.023
Second Largest	0.26	Median	0.0425
Maximum	0.44	Third Quartile	0.0795
Mean	0.0806	SD	0.103
Coefficient of Variation	1.281	Skewness	2.473
Mean of logged Data	-3.084	SD of logged Data	1.055

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.678	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.275	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.323	90% Percentile (z)	0.213
	95% UPL (t)	0.262	95% Percentile (z)	0.251
	95% USL	0.35	99% Percentile (z)	0.321

Gamma GOF Test

A-D Test Statistic	0.716	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.77	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.17	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.191	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.017	k star (bias corrected MLE)	0.909
Theta hat (MLE)	0.0793	Theta star (bias corrected MLE)	0.0887
nu hat (MLE)	44.76	nu star (bias corrected)	39.99
MLE Mean (bias corrected)	0.0806	MLE Sd (bias corrected)	0.0846

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.255	90% Percentile	0.19
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.259	95% Percentile	0.25
95% WH Approx. Gamma UTL with 95% Coverage	0.371	99% Percentile	0.39
95% HW Approx. Gamma UTL with 95% Coverage	0.394		
95% WH USL	0.431	95% HW USL	0.465

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.971	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0955	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.546	90% Percentile (z)	0.177
95% UPL (t)	0.293	95% Percentile (z)	0.26
95% USL	0.713	99% Percentile (z)	0.533

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.44
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.44	95% BCA Bootstrap UTL with 95% Coverage	0.44
95% UPL	0.413	90% Percentile	0.202
90% Chebyshev UPL	0.398	95% Percentile	0.258
95% Chebyshev UPL	0.541	99% Percentile	0.402
95% USL	0.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	22
Minimum	0.009	First Quartile	0.023
Second Largest	0.26	Median	0.0425
Maximum	0.44	Third Quartile	0.0795

Mean	0.0806	SD	0.103
Coefficient of Variation	1.281	Skewness	2.473
Mean of logged Data	-3.084	SD of logged Data	1.055

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.678	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.275	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.323	90% Percentile (z)	0.213
	95% UPL (t)	0.262	95% Percentile (z)	0.251
	95% USL	0.35	99% Percentile (z)	0.321

Gamma GOF Test

A-D Test Statistic	0.716	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.77	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.17	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.191	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.017	k star (bias corrected MLE)	0.909
Theta hat (MLE)	0.0793	Theta star (bias corrected MLE)	0.0887
nu hat (MLE)	44.76	nu star (bias corrected)	39.99
MLE Mean (bias corrected)	0.0806	MLE Sd (bias corrected)	0.0846

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.255	90% Percentile	0.19
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.259	95% Percentile	0.25
95% WH Approx. Gamma UTL with	95% Coverage	0.371	99% Percentile	0.39
95% HW Approx. Gamma UTL with	95% Coverage	0.394		
	95% WH USL	0.431	95% HW USL	0.465

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.971	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0955	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.546	90% Percentile (z)	0.177
	95% UPL (t)	0.293	95% Percentile (z)	0.26
	95% USL	0.713	99% Percentile (z)	0.533

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.44
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.44	95% BCA Bootstrap UTL with 95% Coverage	0.44
95% UPL	0.413	90% Percentile	0.202
90% Chebyshev UPL	0.398	95% Percentile	0.258
95% Chebyshev UPL	0.541	99% Percentile	0.402
95% USL	0.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	17
Minimum	1.4000E-4	First Quartile	2.1250E-4
Second Largest	0.0026	Median	3.7000E-4
Maximum	0.0044	Third Quartile	6.4000E-4
Mean	8.3955E-4	SD	0.00108
Coefficient of Variation	1.281	Skewness	2.215
Mean of logged Data	-7.649	SD of logged Data	1.023

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.67	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.346	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.00337	90% Percentile (z)	0.00222
	95% UPL (t)	0.00273	95% Percentile (z)	0.00261
	95% USL	0.00364	99% Percentile (z)	0.00334

Gamma GOF Test

A-D Test Statistic	1.359	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.77	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.241	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.191	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.017	k star (bias corrected MLE)	0.909
Theta hat (MLE)	8.2544E-4	Theta star (bias corrected MLE)	9.2390E-4
nu hat (MLE)	44.75	nu star (bias corrected)	39.98
MLE Mean (bias corrected)	8.3955E-4	MLE Sd (bias corrected)	8.8072E-4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00265	90% Percentile	0.00198
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.00267	95% Percentile	0.0026
95% WH Approx. Gamma UTL with 95% Coverage	0.00386	99% Percentile	0.00406
95% HW Approx. Gamma UTL with 95% Coverage	0.00406		
95% WH USL	0.00449	95% HW USL	0.0048

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.911	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.159	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.00527	90% Percentile (z)	0.00177
	95% UPL (t)	0.00288	95% Percentile (z)	0.00257
	95% USL	0.00684	99% Percentile (z)	0.00515

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with	95% Coverage	0.0044
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
		Approximate Sample Size needed to achieve specified CC		59

95% Percentile Bootstrap UTL with	95% Coverage	0.0044	95% BCA Bootstrap UTL with	95% Coverage	0.0044
	95% UPL	0.00413		90% Percentile	0.00227
	90% Chebyshev UPL	0.00414		95% Percentile	0.00259
	95% Chebyshev UPL	0.00563		99% Percentile	0.00402
	95% USL	0.0044			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	20
Minimum	0.0012	First Quartile	0.0032
Second Largest	0.036	Median	0.00595
Maximum	0.06	Third Quartile	0.011
Mean	0.0111	SD	0.0141
Coefficient of Variation	1.271	Skewness	2.474
Mean of logged Data	-5.064	SD of logged Data	1.053

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.68	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.275	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0441		90% Percentile (z)	0.0291
	95% UPL (t)	0.0358		95% Percentile (z)	0.0342
	95% USL	0.0477		99% Percentile (z)	0.0438

Gamma GOF Test

A-D Test Statistic	0.68	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.77	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.167	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.191	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.027	k star (bias corrected MLE)	0.917
Theta hat (MLE)	0.0108	Theta star (bias corrected MLE)	0.0121
nu hat (MLE)	45.19	nu star (bias corrected)	40.36
MLE Mean (bias corrected)	0.0111	MLE Sd (bias corrected)	0.0116

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0349	90% Percentile	0.026
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0355	95% Percentile	0.0342
95% WH Approx. Gamma UTL with 95% Coverage	0.0508	99% Percentile	0.0532
95% HW Approx. Gamma UTL with 95% Coverage	0.0538		
95% WH USL	0.0589	95% HW USL	0.0636

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.974	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.0924	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0749	90% Percentile (z)	0.0244
95% UPL (t)	0.0403	95% Percentile (z)	0.0357
95% USL	0.0978	99% Percentile (z)	0.0731

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.06
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.06	95% BCA Bootstrap UTL with 95% Coverage	0.06
95% UPL	0.0564	90% Percentile	0.0269
90% Chebyshev UPL	0.0542	95% Percentile	0.0356
95% Chebyshev UPL	0.0738	99% Percentile	0.055
95% USL	0.06		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (calcium_ug/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	14000	First Quartile	18175
Second Largest	37400	Median	21150
Maximum	41000	Third Quartile	29275
Mean	24100	SD	7677
Coefficient of Variation	0.319	Skewness	0.716
Mean of logged Data	10.04	SD of logged Data	0.307

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.907	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.199	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	42133	90% Percentile (z)	33938
	95% UPL (t)	37606	95% Percentile (z)	36727
	95% USL	44081	99% Percentile (z)	41959

Gamma GOF Test

A-D Test Statistic	0.741	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.189	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.185	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.04	k star (bias corrected MLE)	9.568
Theta hat (MLE)	2182	Theta star (bias corrected MLE)	2519
nu hat (MLE)	485.9	nu star (bias corrected)	421
MLE Mean (bias corrected)	24100	MLE Sd (bias corrected)	7791

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		38654	90% Percentile 34468
95% Hawkins Wixley (HW) Approx. Gamma UPL		38838	95% Percentile 38180
95% WH Approx. Gamma UTL with	95% Coverage	44971	99% Percentile 45815
95% HW Approx. Gamma UTL with	95% Coverage	45479	
	95% WH USL	47890	95% HW USL 48585

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.937	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	47322	90% Percentile (z)		34105
	95% UPL (t)	39491	95% Percentile (z)		38127
	95% USL	51153	99% Percentile (z)		46994

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	41000
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	41000	95% BCA Bootstrap UTL with	95% Coverage	41000
	95% UPL	40460	90% Percentile		33870
	90% Chebyshev UPL	47648	95% Percentile		37230
	95% Chebyshev UPL	58314	99% Percentile		40244
	95% USL	41000			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (chloride_mg/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	19		
Number of Detects	18	Number of Non-Detects	4
Number of Distinct Detects	15	Number of Distinct Non-Detects	4
Minimum Detect	0.16	Minimum Non-Detect	0.6
Maximum Detect	5.4	Maximum Non-Detect	1.7
Variance Detected	2.611	Percent Non-Detects	18.18%
Mean Detected	1.321	SD Detected	1.616
Mean of Detected Logged Data	-0.303	SD of Detected Logged Data	1.069

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.291	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.162	KM SD	1.465
95% UTL95% Coverage	4.603	95% KM UPL (t)	3.739
90% KM Percentile (z)	3.039	95% KM Percentile (z)	3.571
99% KM Percentile (z)	4.569	95% KM USL	4.974

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.19	SD	1.486
95% UTL95% Coverage	4.679	95% UPL (t)	3.803
90% Percentile (z)	3.094	95% Percentile (z)	3.633
99% Percentile (z)	4.646	95% USL	5.056

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.993	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.221	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.209	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.994	k star (bias corrected MLE)	0.865
Theta hat (MLE)	1.329	Theta star (bias corrected MLE)	1.527
nu hat (MLE)	35.78	nu star (bias corrected)	31.15
MLE Mean (bias corrected)	1.321		
MLE Sd (bias corrected)	1.42	95% Percentile of Chisquare (2kstar)	5.458

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0416	Mean	1.133
Maximum	5.4	Median	0.49
SD	1.512	CV	1.335

k hat (MLE)	0.889	k star (bias corrected MLE)	0.798
Theta hat (MLE)	1.275	Theta star (bias corrected MLE)	1.42
nu hat (MLE)	39.1	nu star (bias corrected)	35.1
MLE Mean (bias corrected)	1.133	MLE Sd (bias corrected)	1.268
95% Percentile of Chisquare (2kstar)	5.181	90% Percentile	2.756
95% Percentile	3.679	99% Percentile	5.857

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5.535	5.918	95% Approx. Gamma UPL	3.73	3.809
95% Gamma USL	6.463	7.054			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.162	SD (KM)	1.465
Variance (KM)	2.145	SE of Mean (KM)	0.322
k hat (KM)	0.63	k star (KM)	0.574
nu hat (KM)	27.71	nu star (KM)	25.27
theta hat (KM)	1.845	theta star (KM)	2.024
80% gamma percentile (KM)	1.916	90% gamma percentile (KM)	3.053
95% gamma percentile (KM)	4.249	99% gamma percentile (KM)	7.154

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5.193	5.427	95% Approx. Gamma UPL	3.571	3.592
95% KM Gamma Percentile	3.302	3.298	95% Gamma USL	6.021	6.403

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.914	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.159	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.185	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.159	Mean in Log Scale	-0.404
SD in Original Scale	1.496	SD in Log Scale	0.99
95% UTL95% Coverage	6.835	95% BCA UTL95% Coverage	5.4
95% Bootstrap (%) UTL95% Coverage	5.4	95% UPL (t)	3.812
90% Percentile (z)	2.375	95% Percentile (z)	3.403
99% Percentile (z)	6.683	95% USL	8.788

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.422	95% KM UTL (Lognormal)95% Coverage	6.875
KM SD of Logged Data	1	95% KM UPL (Lognormal)	3.812

95% KM Percentile Lognormal (z)	3.399	95% KM USL (Lognormal)	8.863

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.19	Mean in Log Scale	-0.359
SD in Original Scale	1.486	SD in Log Scale	0.99
95% UTL95% Coverage	7.138	95% UPL (t)	3.982
90% Percentile (z)	2.482	95% Percentile (z)	3.556
99% Percentile (z)	6.979	95% USL	9.175

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	5.4
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5.277
95% USL	5.4	95% KM Chebyshev UPL	7.69

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	5	Number of Non-Detects	17
Number of Distinct Detects	5	Number of Distinct Non-Detects	17
Minimum Detect	0.88	Minimum Non-Detect	0.08
Maximum Detect	3.86	Maximum Non-Detect	1.56
Variance Detected	1.38	Percent Non-Detects	77.27%
Mean Detected	1.806	SD Detected	1.175
Mean of Detected Logged Data	0.458	SD of Detected Logged Data	0.543

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.744	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.399	**Lilliefors GOF Test**	

1% Lilliefors Critical Value	0.396	Data Not Normal at 1% Significance Level

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.488	KM SD	0.883
95% UTL95% Coverage	2.562	95% KM UPL (t)	2.041
90% KM Percentile (z)	1.62	95% KM Percentile (z)	1.94
99% KM Percentile (z)	2.542	95% KM USL	2.786

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.645	SD	0.84
95% UTL95% Coverage	2.617	95% UPL (t)	2.122
90% Percentile (z)	1.721	95% Percentile (z)	2.026
99% Percentile (z)	2.598	95% USL	2.83

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.583	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.681	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.369	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.359	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.921	k star (bias corrected MLE)	1.702
Theta hat (MLE)	0.461	Theta star (bias corrected MLE)	1.061
nu hat (MLE)	39.21	nu star (bias corrected)	17.02
MLE Mean (bias corrected)	1.806		
MLE Sd (bias corrected)	1.384	95% Percentile of Chisquare (2kstar)	8.503

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.418
Maximum	3.86	Median	0.01
SD	0.925	CV	2.213
k hat (MLE)	0.271	k star (bias corrected MLE)	0.265
Theta hat (MLE)	1.541	Theta star (bias corrected MLE)	1.58
nu hat (MLE)	11.94	nu star (bias corrected)	11.65
MLE Mean (bias corrected)	0.418	MLE Sd (bias corrected)	0.813
95% Percentile of Chisquare (2kstar)	2.519	90% Percentile	1.25
95% Percentile	1.99	99% Percentile	3.944

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.96	3.202	95% Approx. Gamma UPL	1.663	1.617
95% Gamma USL	3.681	4.159			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.488	SD (KM)	0.883
Variance (KM)	0.779	SE of Mean (KM)	0.213
k hat (KM)	0.306	k star (KM)	0.295
nu hat (KM)	13.47	nu star (KM)	12.97
theta hat (KM)	1.595	theta star (KM)	1.657
80% gamma percentile (KM)	0.746	90% gamma percentile (KM)	1.443
95% gamma percentile (KM)	2.247	99% gamma percentile (KM)	4.34

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.702	2.8	95% Approx. Gamma UPL	1.713	1.68
95% KM Gamma Percentile	1.554	1.509	95% Gamma USL	3.224	3.425

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.872	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.334	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.319	Data Not Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.612	Mean in Log Scale	-0.938
SD in Original Scale	0.838	SD in Log Scale	0.813
95% UTL95% Coverage	2.642	95% BCA UTL95% Coverage	3.86
95% Bootstrap (%) UTL95% Coverage	3.86	95% UPL (t)	1.636
90% Percentile (z)	1.11	95% Percentile (z)	1.491
99% Percentile (z)	2.594	95% USL	3.248

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.807	95% KM UTL (Lognormal)95% Coverage	3.407
KM SD of Logged Data	1.291	95% KM UPL (Lognormal)	1.591
95% KM Percentile Lognormal (z)	1.373	95% KM USL (Lognormal)	4.729

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.645	Mean in Log Scale	-0.977
SD in Original Scale	0.84	SD in Log Scale	1.044
95% UTL95% Coverage	4.369	95% UPL (t)	2.361

90% Percentile (z)	1.434	95% Percentile (z)	2.095
99% Percentile (z)	4.267	95% USL	5.694

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	3.86
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3.515
95% USL	3.86	95% KM Chebyshev UPL	4.423

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	5	Number of Non-Detects	17
Number of Distinct Detects	5	Number of Distinct Non-Detects	17
Minimum Detect	0.88	Minimum Non-Detect	0.08
Maximum Detect	3.86	Maximum Non-Detect	1.56
Variance Detected	1.38	Percent Non-Detects	77.27%
Mean Detected	1.806	SD Detected	1.175
Mean of Detected Logged Data	0.458	SD of Detected Logged Data	0.543

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Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.744	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level	
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Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.488	KM SD	0.883
95% UTL95% Coverage	2.562	95% KM UPL (t)	2.041

90% KM Percentile (z)	1.62	95% KM Percentile (z)	1.94
99% KM Percentile (z)	2.542	95% KM USL	2.786

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.645	SD	0.84
95% UTL95% Coverage	2.617	95% UPL (t)	2.122
90% Percentile (z)	1.721	95% Percentile (z)	2.026
99% Percentile (z)	2.598	95% USL	2.83

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Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.583	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.681	Detected data appear Gamma Distributed at 5% Significance Level
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MLE Mean (bias corrected)	1.806		
MLE Sd (bias corrected)	1.384	95% Percentile of Chisquare (2kstar)	8.503

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Maximum	3.86	Median	0.01
SD	0.925	CV	2.213
k hat (MLE)	0.271	k star (bias corrected MLE)	0.265
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MLE Mean (bias corrected)	0.418	MLE Sd (bias corrected)	0.813
95% Percentile of Chisquare (2kstar)	2.519	90% Percentile	1.25
95% Percentile	1.99	99% Percentile	3.944

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.96	3.202	95% Approx. Gamma UPL	1.663	1.617
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Mean (KM)	0.488	SD (KM)	0.883
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Mean in Original Scale	0.612	Mean in Log Scale	-0.938
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95% UTL95% Coverage	2.642	95% BCA UTL95% Coverage	3.86
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KM SD of Logged Data	1.291	95% KM UPL (Lognormal)	1.591
95% KM Percentile Lognormal (z)	1.373	95% KM USL (Lognormal)	4.729

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Mean in Original Scale	0.645	Mean in Log Scale	-0.977
SD in Original Scale	0.84	SD in Log Scale	1.044
95% UTL95% Coverage	4.369	95% UPL (t)	2.361
90% Percentile (z)	1.434	95% Percentile (z)	2.095
99% Percentile (z)	4.267	95% USL	5.694

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Order of Statistic, r	22	95% UTL with95% Coverage	3.86
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Approximate Sample Size needed to achieve specified CC	59	95% UPL	3.515
95% USL	3.86	95% KM Chebyshev UPL	4.423

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concDL (copper_ug/l_awqc_concentration_fish)

General Statistics

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Number of Distinct Detects	5	Number of Distinct Non-Detects	17
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Mean	0.645	SD	0.84
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MLE Mean (bias corrected)	0.418	MLE Sd (bias corrected)	0.813
95% Percentile of Chisquare (2kstar)	2.519	90% Percentile	1.25
95% Percentile	1.99	99% Percentile	3.944

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

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95% Approx. Gamma UTL with 95% Coverage	2.96	3.202	95% Approx. Gamma UPL	1.663	1.617
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Mean in Original Scale	0.612	Mean in Log Scale	-0.938
SD in Original Scale	0.838	SD in Log Scale	0.813
95% UTL95% Coverage	2.642	95% BCA UTL95% Coverage	3.86
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KM SD of Logged Data	1.291	95% KM UPL (Lognormal)	1.591
95% KM Percentile Lognormal (z)	1.373	95% KM USL (Lognormal)	4.729

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Mean in Original Scale	0.645	Mean in Log Scale	-0.977
SD in Original Scale	0.84	SD in Log Scale	1.044
95% UTL95% Coverage	4.369	95% UPL (t)	2.361
90% Percentile (z)	1.434	95% Percentile (z)	2.095
99% Percentile (z)	4.267	95% USL	5.694

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Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	3.86
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3.515
95% USL	3.86	95% KM Chebyshev UPL	4.423

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The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	20
Minimum	0.036	First Quartile	0.213
Second Largest	4.3	Median	0.565
Maximum	7.4	Third Quartile	1.2
Mean	1.075	SD	1.689
Coefficient of Variation	1.571	Skewness	3.033
Mean of logged Data	-0.75	SD of logged Data	1.353

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.59	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.287	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.043	90% Percentile (z)	3.24
	95% UPL (t)	4.047	95% Percentile (z)	3.853
	95% USL	5.471	99% Percentile (z)	5.004

Gamma GOF Test

A-D Test Statistic	0.521	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.785	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.137	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.193	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.73	k star (bias corrected MLE)	0.661
Theta hat (MLE)	1.472	Theta star (bias corrected MLE)	1.626
nu hat (MLE)	32.14	nu star (bias corrected)	29.09
MLE Mean (bias corrected)	1.075	MLE Sd (bias corrected)	1.322

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3.74	90% Percentile	2.735
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.862	95% Percentile	3.736
95% WH Approx. Gamma UTL with 95% Coverage	5.689	99% Percentile	6.136
95% HW Approx. Gamma UTL with 95% Coverage	6.206		
95% WH USL	6.702	95% HW USL	7.489

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.984	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0926	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	11.33	90% Percentile (z)	2.674
95% UPL (t)	5.103	95% Percentile (z)	4.371
95% USL	15.97	99% Percentile (z)	10.99

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	7.4
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7.4	95% BCA Bootstrap UTL with 95% Coverage	7.4
95% UPL	6.935	90% Percentile	1.59
90% Chebyshev UPL	6.256	95% Percentile	4.165
95% Chebyshev UPL	8.603	99% Percentile	6.749
95% USL	7.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	20
Minimum	0.036	First Quartile	0.213
Second Largest	4.3	Median	0.565

Maximum	7.4	Third Quartile	1.2
Mean	1.075	SD	1.689
Coefficient of Variation	1.571	Skewness	3.033
Mean of logged Data	-0.75	SD of logged Data	1.353

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.59	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.287	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.043	90% Percentile (z)	3.24
	95% UPL (t)	4.047	95% Percentile (z)	3.853
	95% USL	5.471	99% Percentile (z)	5.004

Gamma GOF Test

A-D Test Statistic	0.521	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.785	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.137	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.193	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.73	k star (bias corrected MLE)	0.661
Theta hat (MLE)	1.472	Theta star (bias corrected MLE)	1.626
nu hat (MLE)	32.14	nu star (bias corrected)	29.09
MLE Mean (bias corrected)	1.075	MLE Sd (bias corrected)	1.322

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		3.74	90% Percentile	2.735
95% Hawkins Wixley (HW) Approx. Gamma UPL		3.862	95% Percentile	3.736
95% WH Approx. Gamma UTL with	95% Coverage	5.689	99% Percentile	6.136
95% HW Approx. Gamma UTL with	95% Coverage	6.206		
	95% WH USL	6.702	95% HW USL	7.489

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.984	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0926	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	11.33	90% Percentile (z)		2.674
	95% UPL (t)	5.103	95% Percentile (z)		4.371
	95% USL	15.97	99% Percentile (z)		10.99

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	7.4
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	7.4	95% BCA Bootstrap UTL with	95% Coverage	7.245
	95% UPL	6.935		90% Percentile	1.59
	90% Chebyshev UPL	6.256		95% Percentile	4.165
	95% Chebyshev UPL	8.603		99% Percentile	6.749
	95% USL	7.4			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	20
Minimum	0.036	First Quartile	0.213
Second Largest	4.3	Median	0.565
Maximum	7.4	Third Quartile	1.2
Mean	1.075	SD	1.689
Coefficient of Variation	1.571	Skewness	3.033
Mean of logged Data	-0.75	SD of logged Data	1.353

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.59	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.287	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.043	90% Percentile (z)		3.24
	95% UPL (t)	4.047	95% Percentile (z)		3.853
	95% USL	5.471	99% Percentile (z)		5.004

Gamma GOF Test

A-D Test Statistic	0.521	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.785	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.137	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.193	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.73	k star (bias corrected MLE)	0.661
Theta hat (MLE)	1.472	Theta star (bias corrected MLE)	1.626
nu hat (MLE)	32.14	nu star (bias corrected)	29.09
MLE Mean (bias corrected)	1.075	MLE Sd (bias corrected)	1.322

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3.74	90% Percentile	2.735
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.862	95% Percentile	3.736
95% WH Approx. Gamma UTL with 95% Coverage	5.689	99% Percentile	6.136
95% HW Approx. Gamma UTL with 95% Coverage	6.206		
95% WH USL	6.702	95% HW USL	7.489

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.984	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0926	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	11.33	90% Percentile (z)		2.674
	95% UPL (t)	5.103	95% Percentile (z)		4.371
	95% USL	15.97	99% Percentile (z)		10.99

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with	95% Coverage	7.4
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676

			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	7.4	95% BCA Bootstrap UTL with	95% Coverage	7.4
	95% UPL	6.935		90% Percentile	1.59
	90% Chebyshev UPL	6.256		95% Percentile	4.165
	95% Chebyshev UPL	8.603		99% Percentile	6.749
	95% USL	7.4			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	19
Minimum	0.067	First Quartile	0.343
Second Largest	9.1	Median	1
Maximum	14	Third Quartile	2.2
Mean	2.042	SD	3.304
Coefficient of Variation	1.618	Skewness	2.914
Mean of logged Data	-0.173	SD of logged Data	1.4

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.586	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.299	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	9.803	90% Percentile (z)		6.276
	95% UPL (t)	7.855	95% Percentile (z)		7.477
	95% USL	10.64	99% Percentile (z)		9.728

Gamma GOF Test

A-D Test Statistic	0.59	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.789	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.138	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.684	k star (bias corrected MLE)	0.621
Theta hat (MLE)	2.986	Theta star (bias corrected MLE)	3.289
nu hat (MLE)	30.08	nu star (bias corrected)	27.31
MLE Mean (bias corrected)	2.042	MLE Sd (bias corrected)	2.591

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	7.23	90% Percentile	5.269
95% Hawkins Wixley (HW) Approx. Gamma UPL	7.457	95% Percentile	7.257
95% WH Approx. Gamma UTL with 95% Coverage	11.1	99% Percentile	12.05
95% HW Approx. Gamma UTL with 95% Coverage	12.13		
95% WH USL	13.12	95% HW USL	14.7

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.981	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.0947	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	22.55	90% Percentile (z)	5.059
95% UPL (t)	9.878	95% Percentile (z)	8.414
95% USL	32.17	99% Percentile (z)	21.85

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	14
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	14	95% BCA Bootstrap UTL with 95% Coverage	14
95% UPL	13.27	90% Percentile	3.18
90% Chebyshev UPL	12.18	95% Percentile	8.805
95% Chebyshev UPL	16.77	99% Percentile	12.97
95% USL	14		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (doc_mg/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	17	Number of Non-Detects	5
Number of Distinct Detects	16	Number of Distinct Non-Detects	5
Minimum Detect	0.28	Minimum Non-Detect	0.07
Maximum Detect	3.05	Maximum Non-Detect	6.19
Variance Detected	0.536	Percent Non-Detects	22.73%
Mean Detected	0.964	SD Detected	0.732
Mean of Detected Logged Data	-0.266	SD of Detected Logged Data	0.681

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.819	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.235	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Detected Data appear Normal at 1% Significance Level

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.898	KM SD	0.701
95% UTL95% Coverage	2.545	95% KM UPL (t)	2.132
90% KM Percentile (z)	1.797	95% KM Percentile (z)	2.052
99% KM Percentile (z)	2.53	95% KM USL	2.723

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.08	SD	0.844
95% UTL95% Coverage	3.064	95% UPL (t)	2.566
90% Percentile (z)	2.162	95% Percentile (z)	2.469
99% Percentile (z)	3.045	95% USL	3.278

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.491	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.748	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.153	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.335	k star (bias corrected MLE)	1.962

Theta hat (MLE)	0.413	Theta star (bias corrected MLE)	0.491
nu hat (MLE)	79.38	nu star (bias corrected)	66.7
MLE Mean (bias corrected)	0.964		
MLE Sd (bias corrected)	0.688	95% Percentile of Chisquare (2kstar)	9.364

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.875
Maximum	3.05	Median	0.725
SD	0.675	CV	0.771
k hat (MLE)	1.604	k star (bias corrected MLE)	1.416
Theta hat (MLE)	0.545	Theta star (bias corrected MLE)	0.618
nu hat (MLE)	70.6	nu star (bias corrected)	62.3
MLE Mean (bias corrected)	0.875	MLE Sd (bias corrected)	0.735
95% Percentile of Chisquare (2kstar)	7.521	90% Percentile	1.849
95% Percentile	2.324	99% Percentile	3.4

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.228	3.624	95% Approx. Gamma UPL	2.364	2.544
95% Gamma USL	3.657	4.181			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.898	SD (KM)	0.701
Variance (KM)	0.492	SE of Mean (KM)	0.166
k hat (KM)	1.638	k star (KM)	1.445
nu hat (KM)	72.09	nu star (KM)	63.59
theta hat (KM)	0.548	theta star (KM)	0.621
80% gamma percentile (KM)	1.395	90% gamma percentile (KM)	1.888
95% gamma percentile (KM)	2.368	99% gamma percentile (KM)	3.455

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.138	3.351	95% Approx. Gamma UPL	2.319	2.4
95% KM Gamma Percentile	2.178	2.241	95% Gamma USL	3.543	3.837

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.957	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.91	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.116	**Lilliefors GOF Test**

10% Lilliefors Critical Value	0.19	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.873	Mean in Log Scale	-0.364
SD in Original Scale	0.669	SD in Log Scale	0.684
95% UTL95% Coverage	3.466	95% BCA UTL95% Coverage	3.05
95% Bootstrap (%) UTL95% Coverage	3.05	95% UPL (t)	2.315
90% Percentile (z)	1.67	95% Percentile (z)	2.141
99% Percentile (z)	3.413	95% USL	4.123

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.412	95% KM UTL (Lognormal)95% Coverage	4.739
KM SD of Logged Data	0.838	95% KM UPL (Lognormal)	2.892
95% KM Percentile Lognormal (z)	2.628	95% KM USL (Lognormal)	5.862

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.08	Mean in Log Scale	-0.266
SD in Original Scale	0.844	SD in Log Scale	0.98
95% UTL95% Coverage	7.65	95% UPL (t)	4.294
90% Percentile (z)	2.689	95% Percentile (z)	3.838
99% Percentile (z)	7.482	95% USL	9.809

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	6.19
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5.88
95% USL	6.19	95% KM Chebyshev UPL	4.024

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (hardness_mg/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	22
Minimum	47	First Quartile	58.78
Second Largest	129	Median	68.05

Maximum	133	Third Quartile	96.63
Mean	79.23	SD	25.52
Coefficient of Variation	0.322	Skewness	0.756
Mean of logged Data	4.326	SD of logged Data	0.308

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.894	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.231	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	139.2	90% Percentile (z)	111.9
	95% UPL (t)	124.1	95% Percentile (z)	121.2
	95% USL	145.6	99% Percentile (z)	138.6

Gamma GOF Test

A-D Test Statistic	0.813	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.226	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.185	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.89	k star (bias corrected MLE)	9.438
Theta hat (MLE)	7.273	Theta star (bias corrected MLE)	8.395
nu hat (MLE)	479.3	nu star (bias corrected)	415.3
MLE Mean (bias corrected)	79.23	MLE Sd (bias corrected)	25.79

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		127.4	90% Percentile	113.6
95% Hawkins Wixley (HW) Approx. Gamma UPL		128	95% Percentile	125.9
95% WH Approx. Gamma UTL with	95% Coverage	148.4	99% Percentile	151.2
95% HW Approx. Gamma UTL with	95% Coverage	150		
	95% WH USL	158.1	95% HW USL	160.3

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.925	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.215	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	156	90% Percentile (z)		112.3
	95% UPL (t)	130.1	95% Percentile (z)		125.6
	95% USL	168.7	99% Percentile (z)		154.9

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	133
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	133	95% BCA Bootstrap UTL with	95% Coverage	133
	95% UPL	132.4		90% Percentile	111.4
	90% Chebyshev UPL	157.5		95% Percentile	128.2
	95% Chebyshev UPL	193		99% Percentile	132.2
	95% USL	133			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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concDL (iron_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	10	Number of Non-Detects	12
Number of Distinct Detects	10	Number of Distinct Non-Detects	11
Minimum Detect	21.7	Minimum Non-Detect	8
Maximum Detect	11100	Maximum Non-Detect	100
Variance Detected	12814575	Percent Non-Detects	54.55%
Mean Detected	2240	SD Detected	3580
Mean of Detected Logged Data	6.396	SD of Detected Logged Data	1.899

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.682	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.781	Data Not Normal at 1% Significance Level	

Lilliefors Test Statistic	0.347	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.304	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1023	KM SD	2545
95% UTL95% Coverage	7001	95% KM UPL (t)	5501
90% KM Percentile (z)	4285	95% KM Percentile (z)	5209
99% KM Percentile (z)	6944	95% KM USL	7647

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1026	SD	2604
95% UTL95% Coverage	7142	95% UPL (t)	5607
90% Percentile (z)	4363	95% Percentile (z)	5309
99% Percentile (z)	7083	95% USL	7803

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.39	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.78	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.222	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.281	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.484	k star (bias corrected MLE)	0.406
Theta hat (MLE)	4628	Theta star (bias corrected MLE)	5524
nu hat (MLE)	9.682	nu star (bias corrected)	8.11
MLE Mean (bias corrected)	2240		
MLE Sd (bias corrected)	3518	95% Percentile of Chisquare (2kstar)	3.354

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1018
Maximum	11100	Median	0.01
SD	2607	CV	2.56
k hat (MLE)	0.121	k star (bias corrected MLE)	0.135
Theta hat (MLE)	8398	Theta star (bias corrected MLE)	7542
nu hat (MLE)	5.335	nu star (bias corrected)	5.941
MLE Mean (bias corrected)	1018	MLE Sd (bias corrected)	2771
95% Percentile of Chisquare (2kstar)	1.515	90% Percentile	2967

95% Percentile	5712	99% Percentile	13859

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7833	9898	95% Approx. Gamma UPL	4134	4385
95% Gamma USL	9938	13429			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1023	SD (KM)	2545
Variance (KM)	6476712	SE of Mean (KM)	571.9
k hat (KM)	0.162	k star (KM)	0.17
nu hat (KM)	7.112	nu star (KM)	7.476
theta hat (KM)	6330	theta star (KM)	6022
80% gamma percentile (KM)	1223	90% gamma percentile (KM)	3075
95% gamma percentile (KM)	5486	99% gamma percentile (KM)	12315

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	6775	7358	95% Approx. Gamma UPL	3796	3693
95% KM Gamma Percentile	3344	3182	95% Gamma USL	8430	9579

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.981	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.869	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.117	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.241	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1020	Mean in Log Scale	3.489
SD in Original Scale	2606	SD in Log Scale	3.009
95% UTL95% Coverage	38464	95% BCA UTL95% Coverage	11100
95% Bootstrap (%) UTL95% Coverage	11100	95% UPL (t)	6524
90% Percentile (z)	1549	95% Percentile (z)	4622
99% Percentile (z)	35929	95% USL	82550

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	4.08	95% KM UTL (Lognormal)95% Coverage	18475
KM SD of Logged Data	2.445	95% KM UPL (Lognormal)	4370
95% KM Percentile Lognormal (z)	3302	95% KM USL (Lognormal)	34363

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1026	Mean in Log Scale	4.187
SD in Original Scale	2604	SD in Log Scale	2.482

95% UTL95% Coverage	22423	95% UPL (t)	5189
90% Percentile (z)	1585	95% Percentile (z)	3905
99% Percentile (z)	21197	95% USL	42099

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Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	11100
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	10260
95% USL	11100	95% KM Chebyshev UPL	12366

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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concDL (iron_ug/l_awqc_concentration_bmi)

General Statistics

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Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.682	**Shapiro Wilk GOF Test**	
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Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1023	KM SD	2545

95% UTL95% Coverage	7001	95% KM UPL (t)	5501
90% KM Percentile (z)	4285	95% KM Percentile (z)	5209
99% KM Percentile (z)	6944	95% KM USL	7647

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1026	SD	2604
95% UTL95% Coverage	7142	95% UPL (t)	5607
90% Percentile (z)	4363	95% Percentile (z)	5309
99% Percentile (z)	7083	95% USL	7803

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k hat (MLE)	0.484	k star (bias corrected MLE)	0.406
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MLE Mean (bias corrected)	2240		
MLE Sd (bias corrected)	3518	95% Percentile of Chisquare (2kstar)	3.354

Gamma ROS Statistics using Imputed Non-Detects

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k hat (MLE)	0.121	k star (bias corrected MLE)	0.135
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MLE Mean (bias corrected)	1018	MLE Sd (bias corrected)	2771
95% Percentile of Chisquare (2kstar)	1.515	90% Percentile	2967
95% Percentile	5712	99% Percentile	13859

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7833	9898	95% Approx. Gamma UPL	4134	4385
95% Gamma USL	9938	13429			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1023	SD (KM)	2545
Variance (KM)	6476712	SE of Mean (KM)	571.9
k hat (KM)	0.162	k star (KM)	0.17
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The following statistics are computed using gamma distribution and KM estimates

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	WH	HW		WH	HW
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Mean in Original Scale	1020	Mean in Log Scale	3.489
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95% Bootstrap (%) UTL95% Coverage	11100	95% UPL (t)	6524
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KM SD of Logged Data	2.445	95% KM UPL (Lognormal)	4370
95% KM Percentile Lognormal (z)	3302	95% KM USL (Lognormal)	34363

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1026	Mean in Log Scale	4.187
SD in Original Scale	2604	SD in Log Scale	2.482
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Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
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concDL (iron_ug/l_awqc_concentration_fish)

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Mean in Original Scale	1020	Mean in Log Scale	3.489
SD in Original Scale	2606	SD in Log Scale	3.009
95% UTL95% Coverage	38464	95% BCA UTL95% Coverage	11100
95% Bootstrap (%) UTL95% Coverage	11100	95% UPL (t)	6524
90% Percentile (z)	1549	95% Percentile (z)	4622
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KM Mean of Logged Data	4.08	95% KM UTL (Lognormal)95% Coverage	18475
KM SD of Logged Data	2.445	95% KM UPL (Lognormal)	4370
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Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1026	Mean in Log Scale	4.187
SD in Original Scale	2604	SD in Log Scale	2.482
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Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	11100
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	10260

95% USL	11100	95% KM Chebyshev UPL	12366

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represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	19
Minimum	0.008	First Quartile	0.0205
Second Largest	5.5	Median	0.049
Maximum	11	Third Quartile	0.408
Mean	1.027	SD	2.58
Coefficient of Variation	2.513	Skewness	3.283
Mean of logged Data	-2.346	SD of logged Data	2.194

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.458	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.385	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	7.088	90% Percentile (z)	4.333
	95% UPL (t)	5.566	95% Percentile (z)	5.271
	95% USL	7.742	99% Percentile (z)	7.029

Gamma GOF Test

A-D Test Statistic	1.981	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.852	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.245	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.202	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.292	k star (bias corrected MLE)	0.282
Theta hat (MLE)	3.517	Theta star (bias corrected MLE)	3.636
nu hat (MLE)	12.85	nu star (bias corrected)	12.43

MLE Mean (bias corrected)	1.027	MLE Sd (bias corrected)	1.932

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3.939	90% Percentile	3.049
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.842	95% Percentile	4.788
95% WH Approx. Gamma UTL with 95% Coverage	6.9	99% Percentile	9.342
95% HW Approx. Gamma UTL with 95% Coverage	7.423		
95% WH USL	8.533	95% HW USL	9.561

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.905	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.158	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	16.58	90% Percentile (z)	1.594
95% UPL (t)	4.547	95% Percentile (z)	3.536
95% USL	28.93	99% Percentile (z)	15.78

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	11
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	11	95% BCA Bootstrap UTL with 95% Coverage	11
95% UPL	10.18	90% Percentile	2.969
90% Chebyshev UPL	8.941	95% Percentile	5.385
95% Chebyshev UPL	12.53	99% Percentile	9.845
95% USL	11		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	19
Minimum	0.008	First Quartile	0.0205

Second Largest	5.5	Median	0.049
Maximum	11	Third Quartile	0.408
Mean	1.027	SD	2.58
Coefficient of Variation	2.513	Skewness	3.283
Mean of logged Data	-2.346	SD of logged Data	2.194

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.458	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.385	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	7.088	90% Percentile (z)	4.333
	95% UPL (t)	5.566	95% Percentile (z)	5.271
	95% USL	7.742	99% Percentile (z)	7.029

Gamma GOF Test

A-D Test Statistic	1.981	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.852	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.245	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.202	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.292	k star (bias corrected MLE)	0.282
Theta hat (MLE)	3.517	Theta star (bias corrected MLE)	3.636
nu hat (MLE)	12.85	nu star (bias corrected)	12.43
MLE Mean (bias corrected)	1.027	MLE Sd (bias corrected)	1.932

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		3.939	90% Percentile	3.049
95% Hawkins Wixley (HW) Approx. Gamma UPL		3.842	95% Percentile	4.788
95% WH Approx. Gamma UTL with	95% Coverage	6.9	99% Percentile	9.342
95% HW Approx. Gamma UTL with	95% Coverage	7.423		
	95% WH USL	8.533	95% HW USL	9.561

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.905	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.158	**Lilliefors Lognormal GOF Test**

10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	16.58	90% Percentile (z)	1.594
	95% UPL (t)	4.547	95% Percentile (z)	3.536
	95% USL	28.93	99% Percentile (z)	15.78

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	22	95% UTL with 95% Coverage	11
	Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	11	95% BCA Bootstrap UTL with 95% Coverage	11
	95% UPL	10.18	90% Percentile	2.969
	90% Chebyshev UPL	8.941	95% Percentile	5.385
	95% Chebyshev UPL	12.53	99% Percentile	9.845
	95% USL	11		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	19
Minimum	0.008	First Quartile	0.0205
Second Largest	5.5	Median	0.049
Maximum	11	Third Quartile	0.408
Mean	1.027	SD	2.58
Coefficient of Variation	2.513	Skewness	3.283
Mean of logged Data	-2.346	SD of logged Data	2.194

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.458	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.385	**Lilliefors GOF Test**	

1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	7.088	90% Percentile (z)	4.333
	95% UPL (t)	5.566	95% Percentile (z)	5.271
	95% USL	7.742	99% Percentile (z)	7.029

Gamma GOF Test

A-D Test Statistic	1.981	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.852	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.245	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.202	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.292	k star (bias corrected MLE)	0.282
Theta hat (MLE)	3.517	Theta star (bias corrected MLE)	3.636
nu hat (MLE)	12.85	nu star (bias corrected)	12.43
MLE Mean (bias corrected)	1.027	MLE Sd (bias corrected)	1.932

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3.939	90% Percentile	3.049
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.842	95% Percentile	4.788
95% WH Approx. Gamma UTL with 95% Coverage	6.9	99% Percentile	9.342
95% HW Approx. Gamma UTL with 95% Coverage	7.423		
95% WH USL	8.533	95% HW USL	9.561

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.905	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.158	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	16.58	90% Percentile (z)	1.594
	95% UPL (t)	4.547	95% Percentile (z)	3.536
	95% USL	28.93	99% Percentile (z)	15.78

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with	95% Coverage	11

Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	11	95% BCA Bootstrap UTL with 95% Coverage	11
95% UPL	10.18	90% Percentile	2.969
90% Chebyshev UPL	8.941	95% Percentile	5.385
95% Chebyshev UPL	12.53	99% Percentile	9.845
95% USL	11		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_taxa-specific benchmark_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	0.021	First Quartile	0.0358
Second Largest	6.5	Median	0.103
Maximum	9.2	Third Quartile	0.405
Mean	1.119	SD	2.403
Coefficient of Variation	2.148	Skewness	2.624
Mean of logged Data	-1.794	SD of logged Data	1.955

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.526	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.389	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	6.764	90% Percentile (z)	4.199
95% UPL (t)	5.347	95% Percentile (z)	5.072
95% USL	7.373	99% Percentile (z)	6.709

Gamma GOF Test

A-D Test Statistic	1.919	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.836	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.245	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.2	Data Not Gamma Distributed at 5% Significance Level

Table C3-4
ProUCL Output for Porewater BTVs and BTV HQs, Approach A
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.352	k star (bias corrected MLE)	0.335
Theta hat (MLE)	3.175	Theta star (bias corrected MLE)	3.344
nu hat (MLE)	15.51	nu star (bias corrected)	14.72
MLE Mean (bias corrected)	1.119	MLE Sd (bias corrected)	1.934

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4.391	90% Percentile	3.253
95% Hawkins Wixley (HW) Approx. Gamma UPL	4.377	95% Percentile	4.939
95% WH Approx. Gamma UTL with 95% Coverage	7.472	99% Percentile	9.264
95% HW Approx. Gamma UTL with 95% Coverage	8.129		
95% WH USL	9.151	95% HW USL	10.33

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.887	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.182	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	16.44	90% Percentile (z)	2.039
95% UPL (t)	5.19	95% Percentile (z)	4.148
95% USL	27	99% Percentile (z)	15.73

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	9.2
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	9.2	95% BCA Bootstrap UTL with 95% Coverage	9.2
95% UPL	8.795	90% Percentile	3.94
90% Chebyshev UPL	8.49	95% Percentile	6.385
95% Chebyshev UPL	11.83	99% Percentile	8.633
95% USL	9.2		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_taxa-specific benchmark_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	0.011	First Quartile	0.0483
Second Largest	5.4	Median	0.096
Maximum	6.6	Third Quartile	0.783
Mean	1.057	SD	1.91
Coefficient of Variation	1.808	Skewness	2.043
Mean of logged Data	-1.613	SD of logged Data	1.904

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.609	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.368	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.544	90% Percentile (z)	3.505
	95% UPL (t)	4.418	95% Percentile (z)	4.199
	95% USL	6.029	99% Percentile (z)	5.501

Gamma GOF Test

A-D Test Statistic	1.725	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.827	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.275	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.199	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.395	k star (bias corrected MLE)	0.372
Theta hat (MLE)	2.674	Theta star (bias corrected MLE)	2.844
nu hat (MLE)	17.39	nu star (bias corrected)	16.35
MLE Mean (bias corrected)	1.057	MLE Sd (bias corrected)	1.734

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		4.252	90% Percentile	3.023
95% Hawkins Wixley (HW) Approx. Gamma UPL		4.362	95% Percentile	4.503
95% WH Approx. Gamma UTL with	95% Coverage	7.102	99% Percentile	8.256
95% HW Approx. Gamma UTL with	95% Coverage	7.932		

95% WH USL	8.643	95% HW USL	10.01

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.907	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.213	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	17.46	90% Percentile (z)	2.287
	95% UPL (t)	5.68	95% Percentile (z)	4.567
	95% USL	28.31	99% Percentile (z)	16.72

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	6.6
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	6.6	95% BCA Bootstrap UTL with	95% Coverage	6.6
	95% UPL	6.42		90% Percentile	3.97
	90% Chebyshev UPL	6.917		95% Percentile	5.335
	95% Chebyshev UPL	9.571		99% Percentile	6.348
	95% USL	6.6			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	6	Number of Non-Detects	16
Number of Distinct Detects	6	Number of Distinct Non-Detects	15
Minimum Detect	0.636	Minimum Non-Detect	0.039
Maximum Detect	5.72	Maximum Non-Detect	0.368
Variance Detected	5.916	Percent Non-Detects	72.73%
Mean Detected	2.529	SD Detected	2.432
Mean of Detected Logged Data	0.531	SD of Detected Logged Data	0.961

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.721	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.353	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.718	KM SD	1.605
95% UTL95% Coverage	4.487	95% KM UPL (t)	3.541
90% KM Percentile (z)	2.775	95% KM Percentile (z)	3.357
99% KM Percentile (z)	4.451	95% KM USL	4.895

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.746	SD	1.631
95% UTL95% Coverage	4.577	95% UPL (t)	3.615
90% Percentile (z)	2.836	95% Percentile (z)	3.429
99% Percentile (z)	4.54	95% USL	4.991

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.729	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.709	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.314	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.338	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.403	k star (bias corrected MLE)	0.813
Theta hat (MLE)	1.803	Theta star (bias corrected MLE)	3.113
nu hat (MLE)	16.83	nu star (bias corrected)	9.751
MLE Mean (bias corrected)	2.529		
MLE Sd (bias corrected)	2.806	95% Percentile of Chisquare (2kstar)	5.242

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.697

Maximum	5.72	Median	0.01
SD	1.652	CV	2.369
k hat (MLE)	0.25	k star (bias corrected MLE)	0.246
Theta hat (MLE)	2.79	Theta star (bias corrected MLE)	2.833
nu hat (MLE)	10.99	nu star (bias corrected)	10.83
MLE Mean (bias corrected)	0.697	MLE Sd (bias corrected)	1.405
95% Percentile of Chisquare (2kstar)	2.393	90% Percentile	2.095
95% Percentile	3.39	99% Percentile	6.847

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.94	5.396	95% Approx. Gamma UPL	2.746	2.68
95% Gamma USL	6.163	7.049			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.718	SD (KM)	1.605
Variance (KM)	2.575	SE of Mean (KM)	0.375
k hat (KM)	0.2	k star (KM)	0.203
nu hat (KM)	8.815	nu star (KM)	8.946
theta hat (KM)	3.585	theta star (KM)	3.532
80% gamma percentile (KM)	0.954	90% gamma percentile (KM)	2.172
95% gamma percentile (KM)	3.685	99% gamma percentile (KM)	7.837

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.476	4.674	95% Approx. Gamma UPL	2.638	2.541
95% KM Gamma Percentile	2.352	2.231	95% Gamma USL	5.476	5.92

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.827	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.826	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.262	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.725	Mean in Log Scale	-2.077
SD in Original Scale	1.639	SD in Log Scale	1.718
95% UTL95% Coverage	7.085	95% BCA UTL95% Coverage	5.72
95% Bootstrap (%) UTL95% Coverage	5.72	95% UPL (t)	2.573
90% Percentile (z)	1.132	95% Percentile (z)	2.114
99% Percentile (z)	6.814	95% USL	10.96

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.215	95% KM UTL (Lognormal)95% Coverage	6.546
KM SD of Logged Data	1.743	95% KM UPL (Lognormal)	2.343
95% KM Percentile Lognormal (z)	1.919	95% KM USL (Lognormal)	10.19

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.746	Mean in Log Scale	-1.87
SD in Original Scale	1.631	SD in Log Scale	1.679
95% UTL95% Coverage	7.954	95% UPL (t)	2.956
90% Percentile (z)	1.325	95% Percentile (z)	2.439
99% Percentile (z)	7.657	95% USL	12.18

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	5.72
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5.701
95% USL	5.72	95% KM Chebyshev UPL	7.87

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	6	Number of Non-Detects	16
Number of Distinct Detects	6	Number of Distinct Non-Detects	15
Minimum Detect	0.636	Minimum Non-Detect	0.039
Maximum Detect	5.72	Maximum Non-Detect	0.368
Variance Detected	5.916	Percent Non-Detects	72.73%
Mean Detected	2.529	SD Detected	2.432
Mean of Detected Logged Data	0.531	SD of Detected Logged Data	0.961

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.721	**Shapiro Wilk GOF Test**	

1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.353	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.718	KM SD	1.605
95% UTL95% Coverage	4.487	95% KM UPL (t)	3.541
90% KM Percentile (z)	2.775	95% KM Percentile (z)	3.357
99% KM Percentile (z)	4.451	95% KM USL	4.895

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.746	SD	1.631
95% UTL95% Coverage	4.577	95% UPL (t)	3.615
90% Percentile (z)	2.836	95% Percentile (z)	3.429
99% Percentile (z)	4.54	95% USL	4.991

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.729	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.709	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.314	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.338	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.403	k star (bias corrected MLE)	0.813
Theta hat (MLE)	1.803	Theta star (bias corrected MLE)	3.113
nu hat (MLE)	16.83	nu star (bias corrected)	9.751
MLE Mean (bias corrected)	2.529		
MLE Sd (bias corrected)	2.806	95% Percentile of Chisquare (2kstar)	5.242

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.697
Maximum	5.72	Median	0.01
SD	1.652	CV	2.369
k hat (MLE)	0.25	k star (bias corrected MLE)	0.246
Theta hat (MLE)	2.79	Theta star (bias corrected MLE)	2.833
nu hat (MLE)	10.99	nu star (bias corrected)	10.83
MLE Mean (bias corrected)	0.697	MLE Sd (bias corrected)	1.405

95% Percentile of Chisquare (2kstar)	2.393	90% Percentile	2.095
95% Percentile	3.39	99% Percentile	6.847

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.94	5.396	95% Approx. Gamma UPL	2.746	2.68
95% Gamma USL	6.163	7.049			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.718	SD (KM)	1.605
Variance (KM)	2.575	SE of Mean (KM)	0.375
k hat (KM)	0.2	k star (KM)	0.203
nu hat (KM)	8.815	nu star (KM)	8.946
theta hat (KM)	3.585	theta star (KM)	3.532
80% gamma percentile (KM)	0.954	90% gamma percentile (KM)	2.172
95% gamma percentile (KM)	3.685	99% gamma percentile (KM)	7.837

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.476	4.674	95% Approx. Gamma UPL	2.638	2.541
95% KM Gamma Percentile	2.352	2.231	95% Gamma USL	5.476	5.92

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.827	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.826	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.262	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.725	Mean in Log Scale	-2.077
SD in Original Scale	1.639	SD in Log Scale	1.718
95% UTL95% Coverage	7.085	95% BCA UTL95% Coverage	5.72
95% Bootstrap (%) UTL95% Coverage	5.72	95% UPL (t)	2.573
90% Percentile (z)	1.132	95% Percentile (z)	2.114
99% Percentile (z)	6.814	95% USL	10.96

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.215	95% KM UTL (Lognormal)95% Coverage	6.546
KM SD of Logged Data	1.743	95% KM UPL (Lognormal)	2.343
95% KM Percentile Lognormal (z)	1.919	95% KM USL (Lognormal)	10.19

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.746	Mean in Log Scale	-1.87

SD in Original Scale	1.631	SD in Log Scale	1.679
95% UTL95% Coverage	7.954	95% UPL (t)	2.956
90% Percentile (z)	1.325	95% Percentile (z)	2.439
99% Percentile (z)	7.657	95% USL	12.18

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Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	5.72
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5.701
95% USL	5.72	95% KM Chebyshev UPL	7.87

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SD in Original Scale	1.639	SD in Log Scale	1.718
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KM Mean of Logged Data	-2.215	95% KM UTL (Lognormal)95% Coverage	6.546
KM SD of Logged Data	1.743	95% KM UPL (Lognormal)	2.343
95% KM Percentile Lognormal (z)	1.919	95% KM USL (Lognormal)	10.19

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.746	Mean in Log Scale	-1.87
SD in Original Scale	1.631	SD in Log Scale	1.679
95% UTL95% Coverage	7.954	95% UPL (t)	2.956
90% Percentile (z)	1.325	95% Percentile (z)	2.439
99% Percentile (z)	7.657	95% USL	12.18

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Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	5.72
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5.701
95% USL	5.72	95% KM Chebyshev UPL	7.87

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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concDL (lead_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	20
Minimum	0.022	First Quartile	0.0413
Second Largest	1.7	Median	0.11
Maximum	2.7	Third Quartile	0.425
Mean	0.388	SD	0.657
Coefficient of Variation	1.695	Skewness	2.65
Mean of logged Data	-1.984	SD of logged Data	1.429

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.607	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	1.931	90% Percentile (z)	1.23
	95% UPL (t)	1.544	95% Percentile (z)	1.469
	95% USL	2.098	99% Percentile (z)	1.917

Gamma GOF Test

A-D Test Statistic	1.225	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.796	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.211	**Kolmogorov-Smirnov Gamma GOF Test**

5% K-S Critical Value	0.195	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.596	k star (bias corrected MLE)	0.545
Theta hat (MLE)	0.65	Theta star (bias corrected MLE)	0.711
nu hat (MLE)	26.25	nu star (bias corrected)	24
MLE Mean (bias corrected)	0.388	MLE Sd (bias corrected)	0.525

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1.421	90% Percentile	1.03
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.445	95% Percentile	1.444
95% WH Approx. Gamma UTL with 95% Coverage	2.232	99% Percentile	2.453
95% HW Approx. Gamma UTL with 95% Coverage	2.411		
95% WH USL	2.659	95% HW USL	2.95

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.931	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.128	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	3.948	90% Percentile (z)	0.859
95% UPL (t)	1.7	95% Percentile (z)	1.443
95% USL	5.674	99% Percentile (z)	3.822

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	2.7
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	2.7	95% BCA Bootstrap UTL with 95% Coverage	2.7
95% UPL	2.55	90% Percentile	0.935
90% Chebyshev UPL	2.404	95% Percentile	1.663
95% Chebyshev UPL	3.317	99% Percentile	2.49
95% USL	2.7		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	20
Minimum	0.022	First Quartile	0.0413
Second Largest	1.7	Median	0.11
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Mean	0.388	SD	0.657
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95% HW Approx. Gamma UTL with	95% Coverage	2.411			
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	95% USL	5.674		99% Percentile (z)	3.822

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95% WH Approx. Gamma UTL with	95% Coverage	2.232	99% Percentile	2.453
95% HW Approx. Gamma UTL with	95% Coverage	2.411		
	95% WH USL	2.659	95% HW USL	2.95

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.931	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.128	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	3.948	90% Percentile (z)	0.859
	95% UPL (t)	1.7	95% Percentile (z)	1.443

95% USL	5.674	99% Percentile (z)	3.822

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	2.7
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	2.7	95% BCA Bootstrap UTL with 95% Coverage	2.65
95% UPL	2.55	90% Percentile	0.935
90% Chebyshev UPL	2.404	95% Percentile	1.663
95% Chebyshev UPL	3.317	99% Percentile	2.49
95% USL	2.7		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	20
Minimum	6.2000E-4	First Quartile	0.0014
Second Largest	0.089	Median	0.0031
Maximum	0.091	Third Quartile	0.00895
Mean	0.0127	SD	0.0256
Coefficient of Variation	2.011	Skewness	2.826
Mean of logged Data	-5.515	SD of logged Data	1.406

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.49	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.334	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0729	90% Percentile (z)	0.0455
95% UPL (t)	0.0578	95% Percentile (z)	0.0548

95% USL	0.0794	99% Percentile (z)	0.0723

Gamma GOF Test

A-D Test Statistic	1.836	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.8	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.243	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.195	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.545	k star (bias corrected MLE)	0.501
Theta hat (MLE)	0.0234	Theta star (bias corrected MLE)	0.0254
nu hat (MLE)	23.96	nu star (bias corrected)	22.03
MLE Mean (bias corrected)	0.0127	MLE Sd (bias corrected)	0.018

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.046	90% Percentile	0.0344
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0454	95% Percentile	0.0489
95% WH Approx. Gamma UTL with 95% Coverage	0.0733	99% Percentile	0.0844
95% HW Approx. Gamma UTL with 95% Coverage	0.0766		
95% WH USL	0.0878	95% HW USL	0.0942

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.914	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.133	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.109	90% Percentile (z)	0.0244
95% UPL (t)	0.0478	95% Percentile (z)	0.0407
95% USL	0.156	99% Percentile (z)	0.106

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.091
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.091	95% BCA Bootstrap UTL with 95% Coverage	0.091
95% UPL	0.0907	90% Percentile	0.0205
90% Chebyshev UPL	0.0913	95% Percentile	0.0856
95% Chebyshev UPL	0.127	99% Percentile	0.0906

95% USL	0.091

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	20
Minimum	0.0021	First Quartile	0.0042
Second Largest	0.16	Median	0.011
Maximum	0.29	Third Quartile	0.0463
Mean	0.0403	SD	0.0686
Coefficient of Variation	1.7	Skewness	2.762
Mean of logged Data	-4.26	SD of logged Data	1.45

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.607	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.31	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.201	90% Percentile (z)	0.128
	95% UPL (t)	0.161	95% Percentile (z)	0.153
	95% USL	0.219	99% Percentile (z)	0.2

Gamma GOF Test

A-D Test Statistic	1.156	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.797	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.193	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.195	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.59	k star (bias corrected MLE)	0.54
Theta hat (MLE)	0.0683	Theta star (bias corrected MLE)	0.0747
nu hat (MLE)	25.96	nu star (bias corrected)	23.76

MLE Mean (bias corrected)	0.0403	MLE Sd (bias corrected)	0.0549

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.148	90% Percentile	0.107
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.151	95% Percentile	0.151
95% WH Approx. Gamma UTL with 95% Coverage	0.234	99% Percentile	0.257
95% HW Approx. Gamma UTL with 95% Coverage	0.253		
95% WH USL	0.278	95% HW USL	0.31

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.935	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.117	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.425	90% Percentile (z)	0.0905
95% UPL (t)	0.181	95% Percentile (z)	0.153
95% USL	0.614	99% Percentile (z)	0.412

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.29
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.29	95% BCA Bootstrap UTL with 95% Coverage	0.29
95% UPL	0.271	90% Percentile	0.0976
90% Chebyshev UPL	0.251	95% Percentile	0.157
95% Chebyshev UPL	0.346	99% Percentile	0.263
95% USL	0.29		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (magnesium_ug/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	22
Minimum	2480	First Quartile	3323

Second Largest	7420	Median	4070
Maximum	8610	Third Quartile	5805
Mean	4616	SD	1688
Coefficient of Variation	0.366	Skewness	0.9
Mean of logged Data	8.378	SD of logged Data	0.346

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.907	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	8581	90% Percentile (z)	6779
	95% UPL (t)	7586	95% Percentile (z)	7392
	95% USL	9010	99% Percentile (z)	8543

Gamma GOF Test

A-D Test Statistic	0.52	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.159	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.185	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	8.623	k star (bias corrected MLE)	7.477
Theta hat (MLE)	535.3	Theta star (bias corrected MLE)	617.3
nu hat (MLE)	379.4	nu star (bias corrected)	329
MLE Mean (bias corrected)	4616	MLE Sd (bias corrected)	1688

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		7806	90% Percentile	6868
95% Hawkins Wixley (HW) Approx. Gamma UPL		7849	95% Percentile	7697
95% WH Approx. Gamma UTL with	95% Coverage	9233	99% Percentile	9418
95% HW Approx. Gamma UTL with	95% Coverage	9356		
	95% WH USL	9897	95% HW USL	10068

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.957	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.137	**Lilliefors Lognormal GOF Test**

10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	9819	90% Percentile (z)		6783
	95% UPL (t)	8004	95% Percentile (z)		7693
	95% USL	10721	99% Percentile (z)		9742

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	8610
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	8610	95% BCA Bootstrap UTL with	95% Coverage	8551
	95% UPL	8432	90% Percentile		7162
	90% Chebyshev UPL	9794	95% Percentile		7412
	95% Chebyshev UPL	12139	99% Percentile		8360
	95% USL	8610			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	18	Number of Non-Detects	4
Number of Distinct Detects	18	Number of Distinct Non-Detects	4
Minimum Detect	2.92	Minimum Non-Detect	0.79
Maximum Detect	859	Maximum Non-Detect	1.93
Variance Detected	82003	Percent Non-Detects	18.18%
Mean Detected	275.3	SD Detected	286.4
Mean of Detected Logged Data	4.479	SD of Detected Logged Data	2.025

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.861	**Shapiro Wilk GOF Test**	

1% Shapiro Wilk Critical Value	0.858	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.194	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	225.4	KM SD	273.1
95% UTL95% Coverage	866.9	95% KM UPL (t)	705.9
90% KM Percentile (z)	575.4	95% KM Percentile (z)	674.6
99% KM Percentile (z)	860.7	95% KM USL	936.2

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	225.4	SD	279.5
95% UTL95% Coverage	882	95% UPL (t)	717.2
90% Percentile (z)	583.6	95% Percentile (z)	685.2
99% Percentile (z)	875.7	95% USL	953

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.585	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.796	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.145	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.549	k star (bias corrected MLE)	0.495
Theta hat (MLE)	501.1	Theta star (bias corrected MLE)	556.3
nu hat (MLE)	19.78	nu star (bias corrected)	17.82
MLE Mean (bias corrected)	275.3		
MLE Sd (bias corrected)	391.4	95% Percentile of Chisquare (2kstar)	3.816

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	225.3
Maximum	859	Median	66.2
SD	279.6	CV	1.241
k hat (MLE)	0.271	k star (bias corrected MLE)	0.264
Theta hat (MLE)	832.2	Theta star (bias corrected MLE)	853
nu hat (MLE)	11.91	nu star (bias corrected)	11.62
MLE Mean (bias corrected)	225.3	MLE Sd (bias corrected)	438.4

95% Percentile of Chisquare (2kstar)	2.515	90% Percentile	673.2
95% Percentile	1073	99% Percentile	2127

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1777	2494	95% Approx. Gamma UPL	1055	1303
95% Gamma USL	2169	3202			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	225.4	SD (KM)	273.1
Variance (KM)	74578	SE of Mean (KM)	59.91
k hat (KM)	0.681	k star (KM)	0.619
nu hat (KM)	29.98	nu star (KM)	27.22
theta hat (KM)	330.9	theta star (KM)	364.3
80% gamma percentile (KM)	371.5	90% gamma percentile (KM)	582.2
95% gamma percentile (KM)	802.2	99% gamma percentile (KM)	1333

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1595	2040	95% Approx. Gamma UPL	968	1114
95% KM Gamma Percentile	869.3	979.5	95% Gamma USL	1933	2579

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.871	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.21	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	225.5	Mean in Log Scale	3.688
SD in Original Scale	279.5	SD in Log Scale	2.504
95% UTL95% Coverage	14306	95% BCA UTL95% Coverage	851.9
95% Bootstrap (%) UTL95% Coverage	859	95% UPL (t)	3270
90% Percentile (z)	988.4	95% Percentile (z)	2454
99% Percentile (z)	13518	95% USL	27006

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.621	95% KM UTL (Lognormal)95% Coverage	14740
KM SD of Logged Data	2.544	95% KM UPL (Lognormal)	3288
95% KM Percentile Lognormal (z)	2457	95% KM USL (Lognormal)	28115

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	225.4	Mean in Log Scale	3.568

SD in Original Scale	279.5	SD in Log Scale	2.693
95% UTL95% Coverage	19795	95% UPL (t)	4047
90% Percentile (z)	1118	95% Percentile (z)	2972
99% Percentile (z)	18624	95% USL	39204

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	859
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	837.6
95% USL	859	95% KM Chebyshev UPL	1443

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	18	Number of Non-Detects	4
Number of Distinct Detects	18	Number of Distinct Non-Detects	4
Minimum Detect	2.92	Minimum Non-Detect	0.79
Maximum Detect	859	Maximum Non-Detect	1.93
Variance Detected	82003	Percent Non-Detects	18.18%
Mean Detected	275.3	SD Detected	286.4
Mean of Detected Logged Data	4.479	SD of Detected Logged Data	2.025

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.861	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.194	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	225.4	KM SD	273.1
95% UTL95% Coverage	866.9	95% KM UPL (t)	705.9
90% KM Percentile (z)	575.4	95% KM Percentile (z)	674.6
99% KM Percentile (z)	860.7	95% KM USL	936.2

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	225.4	SD	279.5
95% UTL95% Coverage	882	95% UPL (t)	717.2
90% Percentile (z)	583.6	95% Percentile (z)	685.2
99% Percentile (z)	875.7	95% USL	953

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.585	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.796	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.145	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.549	k star (bias corrected MLE)	0.495
Theta hat (MLE)	501.1	Theta star (bias corrected MLE)	556.3
nu hat (MLE)	19.78	nu star (bias corrected)	17.82
MLE Mean (bias corrected)	275.3		
MLE Sd (bias corrected)	391.4	95% Percentile of Chisquare (2kstar)	3.816

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	225.3
Maximum	859	Median	66.2
SD	279.6	CV	1.241
k hat (MLE)	0.271	k star (bias corrected MLE)	0.264
Theta hat (MLE)	832.2	Theta star (bias corrected MLE)	853
nu hat (MLE)	11.91	nu star (bias corrected)	11.62
MLE Mean (bias corrected)	225.3	MLE Sd (bias corrected)	438.4
95% Percentile of Chisquare (2kstar)	2.515	90% Percentile	673.2
95% Percentile	1073	99% Percentile	2127

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1777	2494	95% Approx. Gamma UPL	1055	1303

95% Gamma USL	2169	3202

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	225.4	SD (KM)	273.1
Variance (KM)	74578	SE of Mean (KM)	59.91
k hat (KM)	0.681	k star (KM)	0.619
nu hat (KM)	29.98	nu star (KM)	27.22
theta hat (KM)	330.9	theta star (KM)	364.3
80% gamma percentile (KM)	371.5	90% gamma percentile (KM)	582.2
95% gamma percentile (KM)	802.2	99% gamma percentile (KM)	1333

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1595	2040	95% Approx. Gamma UPL	968	1114
95% KM Gamma Percentile	869.3	979.5	95% Gamma USL	1933	2579

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.871	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.21	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	225.5	Mean in Log Scale	3.688
SD in Original Scale	279.5	SD in Log Scale	2.504
95% UTL95% Coverage	14306	95% BCA UTL95% Coverage	859
95% Bootstrap (%) UTL95% Coverage	859	95% UPL (t)	3270
90% Percentile (z)	988.4	95% Percentile (z)	2454
99% Percentile (z)	13518	95% USL	27006

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.621	95% KM UTL (Lognormal)95% Coverage	14740
KM SD of Logged Data	2.544	95% KM UPL (Lognormal)	3288
95% KM Percentile Lognormal (z)	2457	95% KM USL (Lognormal)	28115

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	225.4	Mean in Log Scale	3.568
SD in Original Scale	279.5	SD in Log Scale	2.693
95% UTL95% Coverage	19795	95% UPL (t)	4047
90% Percentile (z)	1118	95% Percentile (z)	2972
99% Percentile (z)	18624	95% USL	39204

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	859
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	837.6
95% USL	859	95% KM Chebyshev UPL	1443

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_awqc_concentration_fish)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	18	Number of Non-Detects	4
Number of Distinct Detects	18	Number of Distinct Non-Detects	4
Minimum Detect	2.92	Minimum Non-Detect	0.79
Maximum Detect	859	Maximum Non-Detect	1.93
Variance Detected	82003	Percent Non-Detects	18.18%
Mean Detected	275.3	SD Detected	286.4
Mean of Detected Logged Data	4.479	SD of Detected Logged Data	2.025

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.861	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.194	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	225.4	KM SD	273.1
95% UTL95% Coverage	866.9	95% KM UPL (t)	705.9
90% KM Percentile (z)	575.4	95% KM Percentile (z)	674.6
99% KM Percentile (z)	860.7	95% KM USL	936.2

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	225.4	SD	279.5
95% UTL95% Coverage	882	95% UPL (t)	717.2
90% Percentile (z)	583.6	95% Percentile (z)	685.2
99% Percentile (z)	875.7	95% USL	953

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.585	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.796	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.145	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.549	k star (bias corrected MLE)	0.495
Theta hat (MLE)	501.1	Theta star (bias corrected MLE)	556.3
nu hat (MLE)	19.78	nu star (bias corrected)	17.82
MLE Mean (bias corrected)	275.3		
MLE Sd (bias corrected)	391.4	95% Percentile of Chisquare (2kstar)	3.816

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	225.3
Maximum	859	Median	66.2
SD	279.6	CV	1.241
k hat (MLE)	0.271	k star (bias corrected MLE)	0.264
Theta hat (MLE)	832.2	Theta star (bias corrected MLE)	853
nu hat (MLE)	11.91	nu star (bias corrected)	11.62
MLE Mean (bias corrected)	225.3	MLE Sd (bias corrected)	438.4
95% Percentile of Chisquare (2kstar)	2.515	90% Percentile	673.2
95% Percentile	1073	99% Percentile	2127

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1777	2494	95% Approx. Gamma UPL	1055	1303
95% Gamma USL	2169	3202			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	225.4	SD (KM)	273.1
Variance (KM)	74578	SE of Mean (KM)	59.91
k hat (KM)	0.681	k star (KM)	0.619

nu hat (KM)	29.98	nu star (KM)	27.22
theta hat (KM)	330.9	theta star (KM)	364.3
80% gamma percentile (KM)	371.5	90% gamma percentile (KM)	582.2
95% gamma percentile (KM)	802.2	99% gamma percentile (KM)	1333

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1595	2040	95% Approx. Gamma UPL	968	1114
95% KM Gamma Percentile	869.3	979.5	95% Gamma USL	1933	2579

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.871	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.21	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	225.5	Mean in Log Scale	3.688
SD in Original Scale	279.5	SD in Log Scale	2.504
95% UTL95% Coverage	14306	95% BCA UTL95% Coverage	859
95% Bootstrap (%) UTL95% Coverage	859	95% UPL (t)	3270
90% Percentile (z)	988.4	95% Percentile (z)	2454
99% Percentile (z)	13518	95% USL	27006

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.621	95% KM UTL (Lognormal)95% Coverage	14740
KM SD of Logged Data	2.544	95% KM UPL (Lognormal)	3288
95% KM Percentile Lognormal (z)	2457	95% KM USL (Lognormal)	28115

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	225.4	Mean in Log Scale	3.568
SD in Original Scale	279.5	SD in Log Scale	2.693
95% UTL95% Coverage	19795	95% UPL (t)	4047
90% Percentile (z)	1118	95% Percentile (z)	2972
99% Percentile (z)	18624	95% USL	39204

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	859
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676

Approximate Sample Size needed to achieve specified CC	59	95% UPL	837.6
95% USL	859	95% KM Chebyshev UPL	1443

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	4.9000E-4	First Quartile	0.00273
Second Largest	0.47	Median	0.0525
Maximum	0.54	Third Quartile	0.255
Mean	0.139	SD	0.17
Coefficient of Variation	1.222	Skewness	1.082
Mean of logged Data	-3.638	SD of logged Data	2.437

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.811	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.537	90% Percentile (z)	0.356
	95% UPL (t)	0.437	95% Percentile (z)	0.418
	95% USL	0.58	99% Percentile (z)	0.533

Gamma GOF Test

A-D Test Statistic	0.859	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.827	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.181	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.199	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.396	k star (bias corrected MLE)	0.373
Theta hat (MLE)	0.35	Theta star (bias corrected MLE)	0.373

nu hat (MLE)	17.44	nu star (bias corrected)	16.39
MLE Mean (bias corrected)	0.139	MLE Sd (bias corrected)	0.227

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.61	90% Percentile	0.397
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.702	95% Percentile	0.591
95% WH Approx. Gamma UTL with 95% Coverage	1.004	99% Percentile	1.083
95% HW Approx. Gamma UTL with 95% Coverage	1.279		
95% WH USL	1.215	95% HW USL	1.614

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.18	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	8.061	90% Percentile (z)	0.598
95% UPL (t)	1.916	95% Percentile (z)	1.449
95% USL	14.96	99% Percentile (z)	7.628

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.54
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.54	95% BCA Bootstrap UTL with 95% Coverage	0.54
95% UPL	0.53	90% Percentile	0.382
90% Chebyshev UPL	0.659	95% Percentile	0.466
95% Chebyshev UPL	0.895	99% Percentile	0.525
95% USL	0.54		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21

Minimum	4.9000E-4	First Quartile	0.00273
Second Largest	0.47	Median	0.0525
Maximum	0.54	Third Quartile	0.255
Mean	0.139	SD	0.17
Coefficient of Variation	1.222	Skewness	1.082
Mean of logged Data	-3.638	SD of logged Data	2.437

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.811	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.537	90% Percentile (z)	0.356
95% UPL (t)	0.437	95% Percentile (z)	0.418
95% USL	0.58	99% Percentile (z)	0.533

Gamma GOF Test

A-D Test Statistic	0.859	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.827	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.181	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.396	k star (bias corrected MLE)	0.373
Theta hat (MLE)	0.35	Theta star (bias corrected MLE)	0.373
nu hat (MLE)	17.44	nu star (bias corrected)	16.39
MLE Mean (bias corrected)	0.139	MLE Sd (bias corrected)	0.227

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.61	90% Percentile	0.397
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.702	95% Percentile	0.591
95% WH Approx. Gamma UTL with 95% Coverage	1.004	99% Percentile	1.083
95% HW Approx. Gamma UTL with 95% Coverage	1.279		
95% WH USL	1.215	95% HW USL	1.614

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level

Lilliefors Test Statistic	0.18	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	8.061	90% Percentile (z)	0.598
	95% UPL (t)	1.916	95% Percentile (z)	1.449
	95% USL	14.96	99% Percentile (z)	7.628

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	0.54
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.54	95% BCA Bootstrap UTL with	95% Coverage	0.54
	95% UPL	0.53		90% Percentile	0.382
	90% Chebyshev UPL	0.659		95% Percentile	0.466
	95% Chebyshev UPL	0.895		99% Percentile	0.525
	95% USL	0.54			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	4.9000E-4	First Quartile	0.00273
Second Largest	0.47	Median	0.0525
Maximum	0.54	Third Quartile	0.255
Mean	0.139	SD	0.17
Coefficient of Variation	1.222	Skewness	1.082
Mean of logged Data	-3.638	SD of logged Data	2.437

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.811	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	

Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.537	90% Percentile (z)	0.356
	95% UPL (t)	0.437	95% Percentile (z)	0.418
	95% USL	0.58	99% Percentile (z)	0.533

Gamma GOF Test

A-D Test Statistic	0.859	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.827	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.181	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.396	k star (bias corrected MLE)	0.373
Theta hat (MLE)	0.35	Theta star (bias corrected MLE)	0.373
nu hat (MLE)	17.44	nu star (bias corrected)	16.39
MLE Mean (bias corrected)	0.139	MLE Sd (bias corrected)	0.227

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.61	90% Percentile	0.397
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.702	95% Percentile	0.591
95% WH Approx. Gamma UTL with	95% Coverage	1.004	99% Percentile	1.083
95% HW Approx. Gamma UTL with	95% Coverage	1.279		
	95% WH USL	1.215	95% HW USL	1.614

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.18	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	8.061	90% Percentile (z)	0.598
	95% UPL (t)	1.916	95% Percentile (z)	1.449
	95% USL	14.96	99% Percentile (z)	7.628

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.54
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.54	95% BCA Bootstrap UTL with 95% Coverage	0.54
95% UPL	0.53	90% Percentile	0.382
90% Chebyshev UPL	0.659	95% Percentile	0.466
95% Chebyshev UPL	0.895	99% Percentile	0.525
95% USL	0.54		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	4.9000E-5	First Quartile	2.4000E-4
Second Largest	0.045	Median	0.0041
Maximum	0.054	Third Quartile	0.0233
Mean	0.0141	SD	0.0175
Coefficient of Variation	1.245	Skewness	1.078
Mean of logged Data	-5.991	SD of logged Data	2.497

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.797	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0552	90% Percentile (z)	0.0365
95% UPL (t)	0.0449	95% Percentile (z)	0.0429
95% USL	0.0596	99% Percentile (z)	0.0548

Gamma GOF Test

A-D Test Statistic	0.79	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.829	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.175	**Kolmogorov-Smirnov Gamma GOF Test**	

5% K-S Critical Value	0.199	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.384	k star (bias corrected MLE)	0.362
Theta hat (MLE)	0.0367	Theta star (bias corrected MLE)	0.0389
nu hat (MLE)	16.88	nu star (bias corrected)	15.91
MLE Mean (bias corrected)	0.0141	MLE Sd (bias corrected)	0.0234

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0622	90% Percentile	0.0404
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0715	95% Percentile	0.0605
95% WH Approx. Gamma UTL with 95% Coverage	0.103	99% Percentile	0.112
95% HW Approx. Gamma UTL with 95% Coverage	0.131		
95% WH USL	0.124	95% HW USL	0.166

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.19	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.883	90% Percentile (z)	0.0614
95% UPL (t)	0.202	95% Percentile (z)	0.152
95% USL	1.664	99% Percentile (z)	0.834

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.054
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.054	95% BCA Bootstrap UTL with 95% Coverage	0.054
95% UPL	0.0527	90% Percentile	0.0434
90% Chebyshev UPL	0.0678	95% Percentile	0.045
95% Chebyshev UPL	0.0921	99% Percentile	0.0521
95% USL	0.054		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data

represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (ph_su_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	6.65	First Quartile	6.873
Second Largest	7.95	Median	7.125
Maximum	7.98	Third Quartile	7.315
Mean	7.155	SD	0.382
Coefficient of Variation	0.0534	Skewness	0.774
Mean of logged Data	1.966	SD of logged Data	0.0526

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.114	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	8.053	90% Percentile (z)	7.645
	95% UPL (t)	7.827	95% Percentile (z)	7.784
	95% USL	8.15	99% Percentile (z)	8.044

Gamma GOF Test

A-D Test Statistic	0.407	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.105	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.185	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	374.9	k star (bias corrected MLE)	323.8
Theta hat (MLE)	0.0191	Theta star (bias corrected MLE)	0.0221
nu hat (MLE)	16497	nu star (bias corrected)	14249
MLE Mean (bias corrected)	7.155	MLE Sd (bias corrected)	0.398

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		7.834	90% Percentile	7.669
95% Hawkins Wixley (HW) Approx. Gamma UPL		7.835	95% Percentile	7.821
95% WH Approx. Gamma UTL with	95% Coverage	8.073	99% Percentile	8.112

95% HW Approx. Gamma UTL with	95% Coverage	8.076			
	95% WH USL	8.178		95% HW USL	8.182

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.941	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.103	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	8.085		90% Percentile (z)	7.643
	95% UPL (t)	7.838		95% Percentile (z)	7.791
	95% USL	8.193		99% Percentile (z)	8.075

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	22	95% UTL with	95% Coverage	7.98
	Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	7.98	95% BCA Bootstrap UTL with	95% Coverage	7.98
	95% UPL	7.976		90% Percentile	7.691
	90% Chebyshev UPL	8.328		95% Percentile	7.938
	95% Chebyshev UPL	8.859		99% Percentile	7.974
	95% USL	7.98			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (potassium_ug/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	22
Minimum	700	First Quartile	855.3
Second Largest	4240	Median	1590
Maximum	7720	Third Quartile	2478
Mean	1992	SD	1603
Coefficient of Variation	0.805	Skewness	2.404
Mean of logged Data	7.373	SD of logged Data	0.654

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.744	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5758	90% Percentile (z)		4047
	95% UPL (t)	4813	95% Percentile (z)		4629
	95% USL	6165	99% Percentile (z)		5722

Gamma GOF Test

A-D Test Statistic	0.612	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.137	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.187	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.386	k star (bias corrected MLE)	2.091
Theta hat (MLE)	835	Theta star (bias corrected MLE)	952.8
nu hat (MLE)	105	nu star (bias corrected)	92.01
MLE Mean (bias corrected)	1992	MLE Sd (bias corrected)	1378

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		4768	90% Percentile		3835
95% Hawkins Wixley (HW) Approx. Gamma UPL		4808	95% Percentile		4660
95% WH Approx. Gamma UTL with	95% Coverage	6295	99% Percentile		6486
95% HW Approx. Gamma UTL with	95% Coverage	6481			
	95% WH USL	7042	95% HW USL		7321

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.122	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	7401	90% Percentile (z)		3682
	95% UPL (t)	5033	95% Percentile (z)		4670

95% USL	8738	99% Percentile (z)	7292

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	7720
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7720	95% BCA Bootstrap UTL with 95% Coverage	7546
95% UPL	7198	90% Percentile	3330
90% Chebyshev UPL	6910	95% Percentile	4197
95% Chebyshev UPL	9137	99% Percentile	6989
95% USL	7720		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sodium_ug/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	20	Number of Non-Detects	2
Number of Distinct Detects	19	Number of Distinct Non-Detects	2
Minimum Detect	1070	Minimum Non-Detect	940
Maximum Detect	5190	Maximum Non-Detect	1130
Variance Detected	1302142	Percent Non-Detects	9.091%
Mean Detected	2560	SD Detected	1141
Mean of Detected Logged Data	7.759	SD of Detected Logged Data	0.431

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.903	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.868	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.207	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.223	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2415	KM SD	1155
95% UTL95% Coverage	5127	95% KM UPL (t)	4447
90% KM Percentile (z)	3895	95% KM Percentile (z)	4314
99% KM Percentile (z)	5101	95% KM USL	5420

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2374	SD	1241
95% UTL95% Coverage	5288	95% UPL (t)	4557
90% Percentile (z)	3964	95% Percentile (z)	4415
99% Percentile (z)	5260	95% USL	5603

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.453	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.165	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.776	k star (bias corrected MLE)	4.943
Theta hat (MLE)	443.1	Theta star (bias corrected MLE)	517.8
nu hat (MLE)	231	nu star (bias corrected)	197.7
MLE Mean (bias corrected)	2560		
MLE Sd (bias corrected)	1151	95% Percentile of Chisquare (2kstar)	18.15

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	425.4	Mean	2377
Maximum	5190	Median	2100
SD	1236	CV	0.52
k hat (MLE)	3.514	k star (bias corrected MLE)	3.065
Theta hat (MLE)	676.4	Theta star (bias corrected MLE)	775.4
nu hat (MLE)	154.6	nu star (bias corrected)	134.9
MLE Mean (bias corrected)	2377	MLE Sd (bias corrected)	1358
95% Percentile of Chisquare (2kstar)	12.79	90% Percentile	4197
95% Percentile	4958	99% Percentile	6604

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	6457	6776	95% Approx. Gamma UPL	5082	5224

95% Gamma USL	7117	7541

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2415	SD (KM)	1155
Variance (KM)	1333011	SE of Mean (KM)	252.6
k hat (KM)	4.376	k star (KM)	3.81
nu hat (KM)	192.5	nu star (KM)	167.6
theta hat (KM)	551.9	theta star (KM)	634
80% gamma percentile (KM)	3349	90% gamma percentile (KM)	4074
95% gamma percentile (KM)	4743	99% gamma percentile (KM)	6175

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5793	5943	95% Approx. Gamma UPL	4690	4745
95% KM Gamma Percentile	4493	4536	95% Gamma USL	6318	6523

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.968	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.92	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.137	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.176	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2408	Mean in Log Scale	7.67
SD in Original Scale	1192	SD in Log Scale	0.5
95% UTL95% Coverage	6939	95% BCA UTL95% Coverage	5150
95% Bootstrap (%) UTL95% Coverage	5190	95% UPL (t)	5167
90% Percentile (z)	4069	95% Percentile (z)	4880
99% Percentile (z)	6861	95% USL	7878

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	7.678	95% KM UTL (Lognormal)95% Coverage	6577
KM SD of Logged Data	0.474	95% KM UPL (Lognormal)	4974
95% KM Percentile Lognormal (z)	4711	95% KM USL (Lognormal)	7417

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2374	Mean in Log Scale	7.621
SD in Original Scale	1241	SD in Log Scale	0.606
95% UTL95% Coverage	8466	95% UPL (t)	5923
90% Percentile (z)	4435	95% Percentile (z)	5526
99% Percentile (z)	8350	95% USL	9873

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	5190
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5069
95% USL	5190	95% KM Chebyshev UPL	7561

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sulfate_mg/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	22
Minimum	1.41	First Quartile	8.513
Second Largest	28.5	Median	11.55
Maximum	35.4	Third Quartile	17.7
Mean	14.22	SD	8.583
Coefficient of Variation	0.603	Skewness	0.914
Mean of logged Data	2.452	SD of logged Data	0.72

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.927	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.211	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	34.38	90% Percentile (z)	25.22
	95% UPL (t)	29.32	95% Percentile (z)	28.34
	95% USL	36.56	99% Percentile (z)	34.19

Gamma GOF Test

A-D Test Statistic	0.281	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.752	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.129	**Kolmogorov-Smirnov Gamma GOF Test**

5% K-S Critical Value	0.187	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.617	k star (bias corrected MLE)	2.29
Theta hat (MLE)	5.435	Theta star (bias corrected MLE)	6.21
nu hat (MLE)	115.1	nu star (bias corrected)	100.8
MLE Mean (bias corrected)	14.22	MLE Sd (bias corrected)	9.398

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	33.26	90% Percentile	26.8
95% Hawkins Wixley (HW) Approx. Gamma UPL	34.5	95% Percentile	32.34
95% WH Approx. Gamma UTL with 95% Coverage	43.43	99% Percentile	44.52
95% HW Approx. Gamma UTL with 95% Coverage	46.27		
95% WH USL	48.39	95% HW USL	52.16

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.927	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.138	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	63.01	90% Percentile (z)	29.21
95% UPL (t)	41.21	95% Percentile (z)	37.95
95% USL	75.65	99% Percentile (z)	61.99

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	35.4
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	35.4	95% BCA Bootstrap UTL with 95% Coverage	35.4
95% UPL	34.37	90% Percentile	26.51
90% Chebyshev UPL	40.55	95% Percentile	28.41
95% Chebyshev UPL	52.47	99% Percentile	33.95
95% USL	35.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data

represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	19		
Number of Detects	5	Number of Non-Detects	17
Number of Distinct Detects	4	Number of Distinct Non-Detects	15
Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	80.4	Maximum Non-Detect	74.6
Variance Detected	1127	Percent Non-Detects	77.27%
Mean Detected	20.38	SD Detected	33.57
Mean of Detected Logged Data	2.21	SD of Detected Logged Data	1.23

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.579	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.457	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	5.665	KM SD	16.41
95% UTL95% Coverage	44.21	95% KM UPL (t)	34.54
90% KM Percentile (z)	26.7	95% KM Percentile (z)	32.66
99% KM Percentile (z)	43.84	95% KM USL	48.38

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	9.186	SD	18.52
95% UTL95% Coverage	52.69	95% UPL (t)	41.77
90% Percentile (z)	32.92	95% Percentile (z)	39.65
99% Percentile (z)	52.27	95% USL	57.39

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.071	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.699	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.452	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.367	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.745	k star (bias corrected MLE)	0.431
Theta hat (MLE)	27.36	Theta star (bias corrected MLE)	47.26
nu hat (MLE)	7.448	nu star (bias corrected)	4.313
MLE Mean (bias corrected)	20.38		
MLE Sd (bias corrected)	31.03	95% Percentile of Chisquare (2kstar)	3.491

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	4.64
Maximum	80.4	Median	0.01
SD	17.06	CV	3.676
k hat (MLE)	0.165	k star (bias corrected MLE)	0.173
Theta hat (MLE)	28.11	Theta star (bias corrected MLE)	26.84
nu hat (MLE)	7.263	nu star (bias corrected)	7.606
MLE Mean (bias corrected)	4.64	MLE Sd (bias corrected)	11.16
95% Percentile of Chisquare (2kstar)	1.846	90% Percentile	13.96
95% Percentile	24.78	99% Percentile	55.32

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	28.52	28.54	95% Approx. Gamma UPL	14.87	12.92
95% Gamma USL	36.33	38.45			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.665	SD (KM)	16.41
Variance (KM)	269.3	SE of Mean (KM)	3.917
k hat (KM)	0.119	k star (KM)	0.133
nu hat (KM)	5.243	nu star (KM)	5.861
theta hat (KM)	47.54	theta star (KM)	42.53
80% gamma percentile (KM)	5.544	90% gamma percentile (KM)	16.46
95% gamma percentile (KM)	31.84	99% gamma percentile (KM)	77.65

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	27.57	25.82	95% Approx. Gamma UPL	17.57	15.86
95% KM Gamma Percentile	15.96	14.33	95% Gamma USL	32.84	31.31

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.686	**Shapiro Wilk GOF Test**	

10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.394	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.319	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	4.849	Mean in Log Scale	-0.573
SD in Original Scale	17	SD in Log Scale	1.701
95% UTL95% Coverage	30.62	95% BCA UTL95% Coverage	76.72
95% Bootstrap (%) UTL95% Coverage	80.4	95% UPL (t)	11.23
90% Percentile (z)	4.984	95% Percentile (z)	9.246
99% Percentile (z)	29.47	95% USL	47.16

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.643	95% KM UTL (Lognormal)95% Coverage	22.31
KM SD of Logged Data	1.048	95% KM UPL (Lognormal)	12.02
95% KM Percentile Lognormal (z)	10.66	95% KM USL (Lognormal)	29.1

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	9.186	Mean in Log Scale	0.952
SD in Original Scale	18.52	SD in Log Scale	1.507
95% UTL95% Coverage	89.29	95% UPL (t)	36.72
90% Percentile (z)	17.87	95% Percentile (z)	30.9
99% Percentile (z)	86.29	95% USL	130.9

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	80.4
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	79.53
95% USL	80.4	95% KM Chebyshev UPL	78.81

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0

Number of Distinct Observations	19		
Number of Detects	5	Number of Non-Detects	17
Number of Distinct Detects	4	Number of Distinct Non-Detects	15
Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	80.4	Maximum Non-Detect	74.6
Variance Detected	1127	Percent Non-Detects	77.27%
Mean Detected	20.38	SD Detected	33.57
Mean of Detected Logged Data	2.21	SD of Detected Logged Data	1.23

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.579	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.457	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	5.665	KM SD	16.41
95% UTL95% Coverage	44.21	95% KM UPL (t)	34.54
90% KM Percentile (z)	26.7	95% KM Percentile (z)	32.66
99% KM Percentile (z)	43.84	95% KM USL	48.38

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	9.186	SD	18.52
95% UTL95% Coverage	52.69	95% UPL (t)	41.77
90% Percentile (z)	32.92	95% Percentile (z)	39.65
99% Percentile (z)	52.27	95% USL	57.39

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.071	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.699	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.452	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.367	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.745	k star (bias corrected MLE)	0.431
Theta hat (MLE)	27.36	Theta star (bias corrected MLE)	47.26
nu hat (MLE)	7.448	nu star (bias corrected)	4.313
MLE Mean (bias corrected)	20.38		
MLE Sd (bias corrected)	31.03	95% Percentile of Chisquare (2kstar)	3.491

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	4.64
Maximum	80.4	Median	0.01
SD	17.06	CV	3.676
k hat (MLE)	0.165	k star (bias corrected MLE)	0.173
Theta hat (MLE)	28.11	Theta star (bias corrected MLE)	26.84
nu hat (MLE)	7.263	nu star (bias corrected)	7.606
MLE Mean (bias corrected)	4.64	MLE Sd (bias corrected)	11.16
95% Percentile of Chisquare (2kstar)	1.846	90% Percentile	13.96
95% Percentile	24.78	99% Percentile	55.32

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	28.52	28.54	95% Approx. Gamma UPL	14.87	12.92
95% Gamma USL	36.33	38.45			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.665	SD (KM)	16.41
Variance (KM)	269.3	SE of Mean (KM)	3.917
k hat (KM)	0.119	k star (KM)	0.133
nu hat (KM)	5.243	nu star (KM)	5.861
theta hat (KM)	47.54	theta star (KM)	42.53
80% gamma percentile (KM)	5.544	90% gamma percentile (KM)	16.46
95% gamma percentile (KM)	31.84	99% gamma percentile (KM)	77.65

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	27.57	25.82	95% Approx. Gamma UPL	17.57	15.86
95% KM Gamma Percentile	15.96	14.33	95% Gamma USL	32.84	31.31

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.686	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.394	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.319	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	4.849	Mean in Log Scale	-0.573
SD in Original Scale	17	SD in Log Scale	1.701
95% UTL95% Coverage	30.62	95% BCA UTL95% Coverage	76.72
95% Bootstrap (%) UTL95% Coverage	80.4	95% UPL (t)	11.23
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95% KM Percentile Lognormal (z)	10.66	95% KM USL (Lognormal)	29.1

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Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	79.53
95% USL	80.4	95% KM Chebyshev UPL	78.81

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concDL (zinc_ug/l_awqc_concentration_fish)

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Number of Distinct Observations	19		
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Variance Detected	1127	Percent Non-Detects	77.27%

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MLE Mean (bias corrected)	4.64	MLE Sd (bias corrected)	11.16
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95% Percentile	24.78	99% Percentile	55.32

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

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95% Approx. Gamma UTL with 95% Coverage	28.52	28.54	95% Approx. Gamma UPL	14.87	12.92
95% Gamma USL	36.33	38.45			

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Mean (KM)	5.665	SD (KM)	16.41
Variance (KM)	269.3	SE of Mean (KM)	3.917
k hat (KM)	0.119	k star (KM)	0.133
nu hat (KM)	5.243	nu star (KM)	5.861
theta hat (KM)	47.54	theta star (KM)	42.53
80% gamma percentile (KM)	5.544	90% gamma percentile (KM)	16.46
95% gamma percentile (KM)	31.84	99% gamma percentile (KM)	77.65

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	27.57	25.82	95% Approx. Gamma UPL	17.57	15.86
95% KM Gamma Percentile	15.96	14.33	95% Gamma USL	32.84	31.31

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.686	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level
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10% Lilliefors Critical Value	0.319	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	4.849	Mean in Log Scale	-0.573
SD in Original Scale	17	SD in Log Scale	1.701
95% UTL95% Coverage	30.62	95% BCA UTL95% Coverage	76.72
95% Bootstrap (%) UTL95% Coverage	80.4	95% UPL (t)	11.23
90% Percentile (z)	4.984	95% Percentile (z)	9.246
99% Percentile (z)	29.47	95% USL	47.16

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.643	95% KM UTL (Lognormal)95% Coverage	22.31
KM SD of Logged Data	1.048	95% KM UPL (Lognormal)	12.02
95% KM Percentile Lognormal (z)	10.66	95% KM USL (Lognormal)	29.1

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	9.186	Mean in Log Scale	0.952
SD in Original Scale	18.52	SD in Log Scale	1.507
95% UTL95% Coverage	89.29	95% UPL (t)	36.72
90% Percentile (z)	17.87	95% Percentile (z)	30.9
99% Percentile (z)	86.29	95% USL	130.9

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	80.4
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	79.53
95% USL	80.4	95% KM Chebyshev UPL	78.81

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	18
Minimum	0.0092	First Quartile	0.018
Second Largest	1	Median	0.029
Maximum	1.1	Third Quartile	0.0695
Mean	0.163	SD	0.313
Coefficient of Variation	1.918	Skewness	2.453
Mean of logged Data	-3.049	SD of logged Data	1.459

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.538	**Shapiro Wilk GOF Test**	

1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.387	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.897	90% Percentile (z)	0.563
	95% UPL (t)	0.713	95% Percentile (z)	0.677
	95% USL	0.976	99% Percentile (z)	0.89

Gamma GOF Test

A-D Test Statistic	2.239	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.803	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.284	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.196	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.513	k star (bias corrected MLE)	0.473
Theta hat (MLE)	0.318	Theta star (bias corrected MLE)	0.344
nu hat (MLE)	22.56	nu star (bias corrected)	20.81
MLE Mean (bias corrected)	0.163	MLE Sd (bias corrected)	0.237

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.603	90% Percentile	0.446
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.596	95% Percentile	0.638
95% WH Approx. Gamma UTL with 95% Coverage	0.971	99% Percentile	1.114
95% HW Approx. Gamma UTL with 95% Coverage	1.022		
95% WH USL	1.166	95% HW USL	1.263

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.866	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.166	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.46	90% Percentile (z)	0.308
	95% UPL (t)	0.618	95% Percentile (z)	0.523
	95% USL	2.114	99% Percentile (z)	1.412

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	1.1
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1.1	95% BCA Bootstrap UTL with 95% Coverage	1.095
95% UPL	1.085	90% Percentile	0.528
90% Chebyshev UPL	1.122	95% Percentile	0.978
95% Chebyshev UPL	1.556	99% Percentile	1.079
95% USL	1.1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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concDL (zinc_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	18
Minimum	0.0092	First Quartile	0.018
Second Largest	1	Median	0.029
Maximum	1.1	Third Quartile	0.0695
Mean	0.163	SD	0.313
Coefficient of Variation	1.918	Skewness	2.453
Mean of logged Data	-3.049	SD of logged Data	1.459

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Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

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Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	1.1
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
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Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.897	90% Percentile (z)	0.563
95% UPL (t)	0.713	95% Percentile (z)	0.677
95% USL	0.976	99% Percentile (z)	0.89

Gamma GOF Test

A-D Test Statistic	2.239	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.803	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.284	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.196	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.513	k star (bias corrected MLE)	0.473
Theta hat (MLE)	0.318	Theta star (bias corrected MLE)	0.344
nu hat (MLE)	22.56	nu star (bias corrected)	20.81
MLE Mean (bias corrected)	0.163	MLE Sd (bias corrected)	0.237

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.603	90% Percentile	0.446
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.596	95% Percentile	0.638

95% WH Approx. Gamma UTL with	95% Coverage	0.971		99% Percentile	1.114
95% HW Approx. Gamma UTL with	95% Coverage	1.022			
	95% WH USL	1.166		95% HW USL	1.263

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.866	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.166	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.46		90% Percentile (z)	0.308
	95% UPL (t)	0.618		95% Percentile (z)	0.523
	95% USL	2.114		99% Percentile (z)	1.412

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	22	95% UTL with	95% Coverage	1.1
	Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	1.1	95% BCA Bootstrap UTL with	95% Coverage	1.1
	95% UPL	1.085		90% Percentile	0.528
	90% Chebyshev UPL	1.122		95% Percentile	0.978
	95% Chebyshev UPL	1.556		99% Percentile	1.079
	95% USL	1.1			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	17
Minimum	0.0069	First Quartile	0.0103
Second Largest	0.47	Median	0.014
Maximum	0.5	Third Quartile	0.0398
Mean	0.0858	SD	0.151
Coefficient of Variation	1.764	Skewness	2.128
Mean of logged Data	-3.588	SD of logged Data	1.394

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.57	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.387	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.441	90% Percentile (z)	0.28
	95% UPL (t)	0.352	95% Percentile (z)	0.335
	95% USL	0.48	99% Percentile (z)	0.438

Gamma GOF Test

A-D Test Statistic	2.664	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.8	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.283	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.195	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.552	k star (bias corrected MLE)	0.507
Theta hat (MLE)	0.155	Theta star (bias corrected MLE)	0.169
nu hat (MLE)	24.31	nu star (bias corrected)	22.33
MLE Mean (bias corrected)	0.0858	MLE Sd (bias corrected)	0.12

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.316	90% Percentile	0.231
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.314	95% Percentile	0.328
95% WH Approx. Gamma UTL with	95% Coverage	0.504	99% Percentile	0.565
95% HW Approx. Gamma UTL with	95% Coverage	0.531		
	95% WH USL	0.603	95% HW USL	0.653

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.806	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.244	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.73	90% Percentile (z)	0.165

95% UPL (t)	0.321	95% Percentile (z)	0.274
95% USL	1.04	99% Percentile (z)	0.708

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.5
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.5	95% BCA Bootstrap UTL with 95% Coverage	0.5
95% UPL	0.496	90% Percentile	0.332
90% Chebyshev UPL	0.55	95% Percentile	0.464
95% Chebyshev UPL	0.76	99% Percentile	0.494
95% USL	0.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	0.0069	First Quartile	0.0133
Second Largest	0.78	Median	0.0225
Maximum	0.81	Third Quartile	0.0528
Mean	0.124	SD	0.237
Coefficient of Variation	1.906	Skewness	2.422
Mean of logged Data	-3.319	SD of logged Data	1.462

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.539	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.389	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.681	90% Percentile (z)	0.428

95% UPL (t)	0.541	95% Percentile (z)	0.514
95% USL	0.741	99% Percentile (z)	0.675

Gamma GOF Test

A-D Test Statistic	2.229	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.803	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.288	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.196	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.513	k star (bias corrected MLE)	0.473
Theta hat (MLE)	0.242	Theta star (bias corrected MLE)	0.263
nu hat (MLE)	22.57	nu star (bias corrected)	20.83
MLE Mean (bias corrected)	0.124	MLE Sd (bias corrected)	0.181

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.461	90% Percentile	0.34
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.456	95% Percentile	0.487
95% WH Approx. Gamma UTL with 95% Coverage	0.741	99% Percentile	0.85
95% HW Approx. Gamma UTL with 95% Coverage	0.782		
95% WH USL	0.891	95% HW USL	0.966

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.867	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.166	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1.123	90% Percentile (z)	0.236
95% UPL (t)	0.474	95% Percentile (z)	0.401
95% USL	1.627	99% Percentile (z)	1.086

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.81
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.81	95% BCA Bootstrap UTL with 95% Coverage	0.809
95% UPL	0.806	90% Percentile	0.406
90% Chebyshev UPL	0.851	95% Percentile	0.763

95% Chebyshev UPL	1.18	99% Percentile	0.804
95% USL	0.81		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Table C3-5
ProUCL Output for Porewater BTVs and BTV HQs, Approach B
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 9/28/2023 10:29:22 AM
From File	porewater_utl_input_base_outlier.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

concDL (alkalinity_mg/l_na_concentration_na)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	18
Minimum	47	First Quartile	56
Second Largest	117	Median	65
Maximum	134	Third Quartile	102
Mean	75.59	SD	25.88
Coefficient of Variation	0.342	Skewness	0.926
Mean of logged Data	4.275	SD of logged Data	0.318

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.854	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.201	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	136.9	90% Percentile (z)	108.8
	95% UPL (t)	121.3	95% Percentile (z)	118.2
	95% USL	142.4	99% Percentile (z)	135.8

Gamma GOF Test

A-D Test Statistic	1.121	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.195	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.189	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.05	k star (bias corrected MLE)	8.645
Theta hat (MLE)	7.523	Theta star (bias corrected MLE)	8.744

nu hat (MLE)	422	nu star (bias corrected)	363.1
MLE Mean (bias corrected)	75.59	MLE Sd (bias corrected)	25.71

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	123.9	90% Percentile	109.8
95% Hawkins Wixley (HW) Approx. Gamma UPL	124.4	95% Percentile	122.2
95% WH Approx. Gamma UTL with 95% Coverage	145.6	99% Percentile	147.8
95% HW Approx. Gamma UTL with 95% Coverage	147.2		
95% WH USL	153.7	95% HW USL	155.8

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.895	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.184	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	152.8	90% Percentile (z)	108
95% UPL (t)	126	95% Percentile (z)	121.3
95% USL	163.3	99% Percentile (z)	150.6

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	134
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	134	95% BCA Bootstrap UTL with 95% Coverage	134
95% UPL	132.3	90% Percentile	111
90% Chebyshev UPL	155	95% Percentile	117
95% Chebyshev UPL	191	99% Percentile	130.6
95% USL	134		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	20		

Number of Detects	7	Number of Non-Detects	14
Number of Distinct Detects	7	Number of Distinct Non-Detects	13
Minimum Detect	59.2	Minimum Non-Detect	4
Maximum Detect	182	Maximum Non-Detect	30.9
Variance Detected	2334	Percent Non-Detects	66.67%
Mean Detected	94.14	SD Detected	48.31
Mean of Detected Logged Data	4.451	SD of Detected Logged Data	0.444

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.739	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.73	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.356	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.35	Data Not Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	34.05	KM SD	49.72
95% UTL95% Coverage	151.9	95% KM UPL (t)	121.8
90% KM Percentile (z)	97.77	95% KM Percentile (z)	115.8
99% KM Percentile (z)	149.7	95% KM USL	162.4

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	35.78	SD	50.03
95% UTL95% Coverage	154.4	95% UPL (t)	124.1
90% Percentile (z)	99.9	95% Percentile (z)	118.1
99% Percentile (z)	152.2	95% USL	164.9

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.909	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.71	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.341	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.313	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.498	k star (bias corrected MLE)	3.237
Theta hat (MLE)	17.12	Theta star (bias corrected MLE)	29.08
nu hat (MLE)	76.98	nu star (bias corrected)	45.32
MLE Mean (bias corrected)	94.14		
MLE Sd (bias corrected)	52.32	95% Percentile of Chisquare (2kstar)	13.3

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	31.39
Maximum	182	Median	0.01
SD	52.61	CV	1.676
k hat (MLE)	0.152	k star (bias corrected MLE)	0.162
Theta hat (MLE)	206	Theta star (bias corrected MLE)	193.3
nu hat (MLE)	6.399	nu star (bias corrected)	6.819
MLE Mean (bias corrected)	31.39	MLE Sd (bias corrected)	77.9
95% Percentile of Chisquare (2kstar)	1.758	90% Percentile	93.95
95% Percentile	170	99% Percentile	387.2

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	282.9	376.9	95% Approx. Gamma UPL	149.2	167
95% Gamma USL	343.1	482.4			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	34.05	SD (KM)	49.72
Variance (KM)	2473	SE of Mean (KM)	11.72
k hat (KM)	0.469	k star (KM)	0.434
nu hat (KM)	19.69	nu star (KM)	18.21
theta hat (KM)	72.62	theta star (KM)	78.52
80% gamma percentile (KM)	55.4	90% gamma percentile (KM)	94.76
95% gamma percentile (KM)	137.5	99% gamma percentile (KM)	244.2

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	201.8	221	95% Approx. Gamma UPL	126.2	129.3
95% KM Gamma Percentile	113.9	115.2	95% Gamma USL	233.6	262

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.781	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.838	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.314	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.28	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	44.49	Mean in Log Scale	3.465
SD in Original Scale	44.7	SD in Log Scale	0.761
95% UTL95% Coverage	194.4	95% BCA UTL95% Coverage	182

95% Bootstrap (%) UTL95% Coverage	182	95% UPL (t)	122.6
90% Percentile (z)	84.83	95% Percentile (z)	111.9
99% Percentile (z)	187.9	95% USL	228

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.408	95% KM UTL (Lognormal)95% Coverage	357.6
KM SD of Logged Data	1.464	95% KM UPL (Lognormal)	147.3
95% KM Percentile Lognormal (z)	123.5	95% KM USL (Lognormal)	485.9

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	35.78	Mean in Log Scale	2.589
SD in Original Scale	50.03	SD in Log Scale	1.479
95% UTL95% Coverage	444.1	95% UPL (t)	181.3
90% Percentile (z)	88.66	95% Percentile (z)	151.7
99% Percentile (z)	415.7	95% USL	605.3

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	182
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	178.1
95% USL	182	95% KM Chebyshev UPL	255.9

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	20		
Number of Detects	7	Number of Non-Detects	14
Number of Distinct Detects	7	Number of Distinct Non-Detects	13
Minimum Detect	59.2	Minimum Non-Detect	4
Maximum Detect	182	Maximum Non-Detect	30.9
Variance Detected	2334	Percent Non-Detects	66.67%
Mean Detected	94.14	SD Detected	48.31
Mean of Detected Logged Data	4.451	SD of Detected Logged Data	0.444

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.739	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.73	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.356	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.35	Data Not Normal at 1% Significance Level

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	34.05	KM SD	49.72
95% UTL95% Coverage	151.9	95% KM UPL (t)	121.8
90% KM Percentile (z)	97.77	95% KM Percentile (z)	115.8
99% KM Percentile (z)	149.7	95% KM USL	162.4

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	35.78	SD	50.03
95% UTL95% Coverage	154.4	95% UPL (t)	124.1
90% Percentile (z)	99.9	95% Percentile (z)	118.1
99% Percentile (z)	152.2	95% USL	164.9

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.909	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.71	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.341	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.313	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.498	k star (bias corrected MLE)	3.237
Theta hat (MLE)	17.12	Theta star (bias corrected MLE)	29.08
nu hat (MLE)	76.98	nu star (bias corrected)	45.32
MLE Mean (bias corrected)	94.14		
MLE Sd (bias corrected)	52.32	95% Percentile of Chisquare (2kstar)	13.3

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	31.39
Maximum	182	Median	0.01
SD	52.61	CV	1.676
k hat (MLE)	0.152	k star (bias corrected MLE)	0.162

Theta hat (MLE)	206	Theta star (bias corrected MLE)	193.3
nu hat (MLE)	6.399	nu star (bias corrected)	6.819
MLE Mean (bias corrected)	31.39	MLE Sd (bias corrected)	77.9
95% Percentile of Chisquare (2kstar)	1.758	90% Percentile	93.95
95% Percentile	170	99% Percentile	387.2

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	282.9	376.9	95% Approx. Gamma UPL	149.2	167
95% Gamma USL	343.1	482.4			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	34.05	SD (KM)	49.72
Variance (KM)	2473	SE of Mean (KM)	11.72
k hat (KM)	0.469	k star (KM)	0.434
nu hat (KM)	19.69	nu star (KM)	18.21
theta hat (KM)	72.62	theta star (KM)	78.52
80% gamma percentile (KM)	55.4	90% gamma percentile (KM)	94.76
95% gamma percentile (KM)	137.5	99% gamma percentile (KM)	244.2

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	201.8	221	95% Approx. Gamma UPL	126.2	129.3
95% KM Gamma Percentile	113.9	115.2	95% Gamma USL	233.6	262

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.781	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.838	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.314	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.28	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	44.49	Mean in Log Scale	3.465
SD in Original Scale	44.7	SD in Log Scale	0.761
95% UTL95% Coverage	194.4	95% BCA UTL95% Coverage	182
95% Bootstrap (%) UTL95% Coverage	182	95% UPL (t)	122.6
90% Percentile (z)	84.83	95% Percentile (z)	111.9
99% Percentile (z)	187.9	95% USL	228

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.408	95% KM UTL (Lognormal)95% Coverage	357.6
KM SD of Logged Data	1.464	95% KM UPL (Lognormal)	147.3
95% KM Percentile Lognormal (z)	123.5	95% KM USL (Lognormal)	485.9

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	35.78	Mean in Log Scale	2.589
SD in Original Scale	50.03	SD in Log Scale	1.479
95% UTL95% Coverage	444.1	95% UPL (t)	181.3
90% Percentile (z)	88.66	95% Percentile (z)	151.7
99% Percentile (z)	415.7	95% USL	605.3

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	182
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	178.1
95% USL	182	95% KM Chebyshev UPL	255.9

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_awqc_concentration_fish)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	20		
Number of Detects	7	Number of Non-Detects	14
Number of Distinct Detects	7	Number of Distinct Non-Detects	13
Minimum Detect	59.2	Minimum Non-Detect	4
Maximum Detect	182	Maximum Non-Detect	30.9
Variance Detected	2334	Percent Non-Detects	66.67%
Mean Detected	94.14	SD Detected	48.31
Mean of Detected Logged Data	4.451	SD of Detected Logged Data	0.444

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.739	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.73	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.356	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.35	Data Not Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	34.05	KM SD	49.72
95% UTL95% Coverage	151.9	95% KM UPL (t)	121.8
90% KM Percentile (z)	97.77	95% KM Percentile (z)	115.8
99% KM Percentile (z)	149.7	95% KM USL	162.4

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	35.78	SD	50.03
95% UTL95% Coverage	154.4	95% UPL (t)	124.1
90% Percentile (z)	99.9	95% Percentile (z)	118.1
99% Percentile (z)	152.2	95% USL	164.9

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.909	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.71	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.341	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.313	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.498	k star (bias corrected MLE)	3.237
Theta hat (MLE)	17.12	Theta star (bias corrected MLE)	29.08
nu hat (MLE)	76.98	nu star (bias corrected)	45.32
MLE Mean (bias corrected)	94.14		
MLE Sd (bias corrected)	52.32	95% Percentile of Chisquare (2kstar)	13.3

Gamma ROS Statistics using Imputed Non-Detects

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Maximum	182	Median	0.01
SD	52.61	CV	1.676
k hat (MLE)	0.152	k star (bias corrected MLE)	0.162
Theta hat (MLE)	206	Theta star (bias corrected MLE)	193.3
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MLE Mean (bias corrected)	31.39	MLE Sd (bias corrected)	77.9
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95% Percentile	170	99% Percentile	387.2

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Mean (KM)	34.05	SD (KM)	49.72
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80% gamma percentile (KM)	55.4	90% gamma percentile (KM)	94.76
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The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

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Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	44.49	Mean in Log Scale	3.465
SD in Original Scale	44.7	SD in Log Scale	0.761
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99% Percentile (z)	415.7	95% USL	605.3

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	182
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	178.1
95% USL	182	95% KM Chebyshev UPL	255.9

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	18
Minimum	0.012	First Quartile	0.022
Second Largest	0.24	Median	0.042
Maximum	0.27	Third Quartile	0.18
Mean	0.0922	SD	0.0919
Coefficient of Variation	0.997	Skewness	0.932
Mean of logged Data	-2.895	SD of logged Data	1.049

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.771	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.299	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.31	90% Percentile (z)	0.21
	95% UPL (t)	0.254	95% Percentile (z)	0.243
	95% USL	0.329	99% Percentile (z)	0.306

Gamma GOF Test

A-D Test Statistic	1.235	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.206	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.194	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.115	k star (bias corrected MLE)	0.988
Theta hat (MLE)	0.0827	Theta star (bias corrected MLE)	0.0933
nu hat (MLE)	46.85	nu star (bias corrected)	41.49
MLE Mean (bias corrected)	0.0922	MLE Sd (bias corrected)	0.0928

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.289	90% Percentile	0.213
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.3	95% Percentile	0.277
95% WH Approx. Gamma UTL with 95% Coverage	0.421	99% Percentile	0.427
95% HW Approx. Gamma UTL with 95% Coverage	0.456		
95% WH USL	0.475	95% HW USL	0.522

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.901	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.155	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.665	90% Percentile (z)	0.212
95% UPL (t)	0.352	95% Percentile (z)	0.31
95% USL	0.828	99% Percentile (z)	0.634

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	0.27
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.27	95% BCA Bootstrap UTL with 95% Coverage	0.24
95% UPL	0.267	90% Percentile	0.24
90% Chebyshev UPL	0.374	95% Percentile	0.24
95% Chebyshev UPL	0.502	99% Percentile	0.264
95% USL	0.27		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	18
Minimum	0.012	First Quartile	0.022
Second Largest	0.24	Median	0.042
Maximum	0.27	Third Quartile	0.18
Mean	0.0922	SD	0.0919
Coefficient of Variation	0.997	Skewness	0.932
Mean of logged Data	-2.895	SD of logged Data	1.049

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.771	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.299	**Lilliefors GOF Test**
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Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.31	90% Percentile (z)	0.21
	95% UPL (t)	0.254	95% Percentile (z)	0.243
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Gamma GOF Test

A-D Test Statistic	1.235	**Anderson-Darling Gamma GOF Test**
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MLE Mean (bias corrected)	0.0922	MLE Sd (bias corrected)	0.0928

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.289	90% Percentile	0.213
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.3	95% Percentile	0.277
95% WH Approx. Gamma UTL with	95% Coverage	0.421	99% Percentile	0.427
95% HW Approx. Gamma UTL with	95% Coverage	0.456		
	95% WH USL	0.475	95% HW USL	0.522

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Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	0.27
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
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concDL (aluminum_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	16
Minimum	9.8000E-4	First Quartile	0.0016
Second Largest	0.035	Median	0.005
Maximum	0.044	Third Quartile	0.016
Mean	0.00976	SD	0.0116
Coefficient of Variation	1.191	Skewness	1.854
Mean of logged Data	-5.273	SD of logged Data	1.183

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.745	**Shapiro Wilk GOF Test**	
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Lilliefors Test Statistic	0.244	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0373	90% Percentile (z)	0.0246
95% UPL (t)	0.0303	95% Percentile (z)	0.0289
95% USL	0.0397	99% Percentile (z)	0.0368

Gamma GOF Test

A-D Test Statistic	0.801	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.774	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.19	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.196	Detected data appear Gamma Distributed at 5% Significance Level	

Table C3-5
ProUCL Output for Porewater BTVs and BTV HQs, Approach B
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.908	k star (bias corrected MLE)	0.81
Theta hat (MLE)	0.0107	Theta star (bias corrected MLE)	0.012
nu hat (MLE)	38.15	nu star (bias corrected)	34.03
MLE Mean (bias corrected)	0.00976	MLE Sd (bias corrected)	0.0108

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0326	90% Percentile	0.0236
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0339	95% Percentile	0.0315
95% WH Approx. Gamma UTL with 95% Coverage	0.0488	99% Percentile	0.05
95% HW Approx. Gamma UTL with 95% Coverage	0.0532		
95% WH USL	0.0554	95% HW USL	0.0616

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.927	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.151	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0848	90% Percentile (z)	0.0234
95% UPL (t)	0.0414	95% Percentile (z)	0.0359
95% USL	0.109	99% Percentile (z)	0.0805

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	0.044
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.044	95% BCA Bootstrap UTL with 95% Coverage	0.044
95% UPL	0.0431	90% Percentile	0.019
90% Chebyshev UPL	0.0454	95% Percentile	0.035
95% Chebyshev UPL	0.0616	99% Percentile	0.0422
95% USL	0.044		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	20		
Number of Detects	9	Number of Non-Detects	13
Number of Distinct Detects	8	Number of Distinct Non-Detects	12
Minimum Detect	0.222	Minimum Non-Detect	0.076
Maximum Detect	0.736	Maximum Non-Detect	0.249
Variance Detected	0.03	Percent Non-Detects	59.09%
Mean Detected	0.449	SD Detected	0.173
Mean of Detected Logged Data	-0.867	SD of Detected Logged Data	0.385

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.899	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.764	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.316	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.232	KM SD	0.21
95% UTL95% Coverage	0.724	95% KM UPL (t)	0.601
90% KM Percentile (z)	0.501	95% KM Percentile (z)	0.577
99% KM Percentile (z)	0.72	95% KM USL	0.778

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.242	SD	0.207
95% UTL95% Coverage	0.728	95% UPL (t)	0.606
90% Percentile (z)	0.507	95% Percentile (z)	0.582
99% Percentile (z)	0.723	95% USL	0.781

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.44	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.722	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.262	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.28	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	7.788	k star (bias corrected MLE)	5.266
Theta hat (MLE)	0.0576	Theta star (bias corrected MLE)	0.0852

nu hat (MLE)	140.2	nu star (bias corrected)	94.79
MLE Mean (bias corrected)	0.449		
MLE Sd (bias corrected)	0.196	95% Percentile of Chisquare (2kstar)	19.04

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.197
Maximum	0.736	Median	0.0331
SD	0.24	CV	1.22
k hat (MLE)	0.533	k star (bias corrected MLE)	0.49
Theta hat (MLE)	0.37	Theta star (bias corrected MLE)	0.402
nu hat (MLE)	23.44	nu star (bias corrected)	21.58
MLE Mean (bias corrected)	0.197	MLE Sd (bias corrected)	0.281
95% Percentile of Chisquare (2kstar)	3.794	90% Percentile	0.535
95% Percentile	0.762	99% Percentile	1.322

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.26	1.479	95% Approx. Gamma UPL	0.791	0.859
95% Gamma USL	1.508	1.831			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.232	SD (KM)	0.21
Variance (KM)	0.0439	SE of Mean (KM)	0.0478
k hat (KM)	1.228	k star (KM)	1.091
nu hat (KM)	54.04	nu star (KM)	48
theta hat (KM)	0.189	theta star (KM)	0.213
80% gamma percentile (KM)	0.371	90% gamma percentile (KM)	0.523
95% gamma percentile (KM)	0.675	99% gamma percentile (KM)	1.024

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.904	0.954	95% Approx. Gamma UPL	0.649	0.662
95% KM Gamma Percentile	0.606	0.614	95% Gamma USL	1.032	1.105

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.252	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.265	Mean in Log Scale	-1.532
SD in Original Scale	0.19	SD in Log Scale	0.619
95% UTL95% Coverage	0.926	95% BCA UTL95% Coverage	0.732
95% Bootstrap (%) UTL95% Coverage	0.736	95% UPL (t)	0.643
90% Percentile (z)	0.478	95% Percentile (z)	0.599
99% Percentile (z)	0.913	95% USL	1.084

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.85	95% KM UTL (Lognormal)95% Coverage	1.205
KM SD of Logged Data	0.867	95% KM UPL (Lognormal)	0.723
95% KM Percentile Lognormal (z)	0.654	95% KM USL (Lognormal)	1.501

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.242	Mean in Log Scale	-1.746
SD in Original Scale	0.207	SD in Log Scale	0.821
95% UTL95% Coverage	1.2	95% UPL (t)	0.739
90% Percentile (z)	0.499	95% Percentile (z)	0.673
99% Percentile (z)	1.178	95% USL	1.478

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

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Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	0.736
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.725
95% USL	0.736	95% KM Chebyshev UPL	1.166

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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concDL (antimony_ug/l_awqc_concentration_bmi)

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MLE Mean (bias corrected)	0.449		
MLE Sd (bias corrected)	0.196	95% Percentile of Chisquare (2kstar)	19.04

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SD	0.24	CV	1.22
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95% Approx. Gamma UTL with 95% Coverage	0.904	0.954	95% Approx. Gamma UPL	0.649	0.662
95% KM Gamma Percentile	0.606	0.614	95% Gamma USL	1.032	1.105

Lognormal GOF Test on Detected Observations Only

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10% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 10% Significance Level
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10% Lilliefors Critical Value	0.252	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.265	Mean in Log Scale	-1.532
SD in Original Scale	0.19	SD in Log Scale	0.619
95% UTL95% Coverage	0.926	95% BCA UTL95% Coverage	0.732
95% Bootstrap (%) UTL95% Coverage	0.736	95% UPL (t)	0.643
90% Percentile (z)	0.478	95% Percentile (z)	0.599
99% Percentile (z)	0.913	95% USL	1.084

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.85	95% KM UTL (Lognormal)95% Coverage	1.205
KM SD of Logged Data	0.867	95% KM UPL (Lognormal)	0.723
95% KM Percentile Lognormal (z)	0.654	95% KM USL (Lognormal)	1.501

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.242	Mean in Log Scale	-1.746
SD in Original Scale	0.207	SD in Log Scale	0.821
95% UTL95% Coverage	1.2	95% UPL (t)	0.739

90% Percentile (z)	0.499	95% Percentile (z)	0.673
99% Percentile (z)	1.178	95% USL	1.478

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Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	0.736
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.725
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concDL (antimony_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	18
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.017	Median	0.006
Maximum	0.019	Third Quartile	0.00965
Mean	0.00769	SD	0.00435
Coefficient of Variation	0.566	Skewness	1.444
Mean of logged Data	-5.002	SD of logged Data	0.524

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.832	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.253	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0179	90% Percentile (z)	0.0133
95% UPL (t)	0.0153	95% Percentile (z)	0.0148
95% USL	0.019	99% Percentile (z)	0.0178

Gamma GOF Test

A-D Test Statistic	0.788	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.208	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.913	k star (bias corrected MLE)	3.409
Theta hat (MLE)	0.00196	Theta star (bias corrected MLE)	0.00225
nu hat (MLE)	172.2	nu star (bias corrected)	150
MLE Mean (bias corrected)	0.00769	MLE Sd (bias corrected)	0.00416

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0159	90% Percentile	0.0133
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0161	95% Percentile	0.0156
95% WH Approx. Gamma UTL with 95% Coverage	0.02	99% Percentile	0.0205
95% HW Approx. Gamma UTL with 95% Coverage	0.0205		
95% WH USL	0.022	95% HW USL	0.0227

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.023	90% Percentile (z)	0.0132
95% UPL (t)	0.0169	95% Percentile (z)	0.0159
95% USL	0.0263	99% Percentile (z)	0.0228

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.019
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.019	95% BCA Bootstrap UTL with 95% Coverage	0.019
95% UPL	0.0187	90% Percentile	0.0145
90% Chebyshev UPL	0.021	95% Percentile	0.0169
95% Chebyshev UPL	0.0271	99% Percentile	0.0186
95% USL	0.019		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers

and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	18
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.017	Median	0.006
Maximum	0.019	Third Quartile	0.00965
Mean	0.00769	SD	0.00435
Coefficient of Variation	0.566	Skewness	1.444
Mean of logged Data	-5.002	SD of logged Data	0.524

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.832	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.253	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0179	90% Percentile (z)	0.0133
	95% UPL (t)	0.0153	95% Percentile (z)	0.0148
	95% USL	0.019	99% Percentile (z)	0.0178

Gamma GOF Test

A-D Test Statistic	0.788	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.208	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.913	k star (bias corrected MLE)	3.409
Theta hat (MLE)	0.00196	Theta star (bias corrected MLE)	0.00225
nu hat (MLE)	172.2	nu star (bias corrected)	150
MLE Mean (bias corrected)	0.00769	MLE Sd (bias corrected)	0.00416

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0159	90% Percentile	0.0133
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0161	95% Percentile	0.0156

95% WH Approx. Gamma UTL with	95% Coverage	0.02	99% Percentile	0.0205
95% HW Approx. Gamma UTL with	95% Coverage	0.0205		
	95% WH USL	0.022	95% HW USL	0.0227

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.023	90% Percentile (z)	0.0132
	95% UPL (t)	0.0169	95% Percentile (z)	0.0159
	95% USL	0.0263	99% Percentile (z)	0.0228

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with	95% Coverage	0.019
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
		Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.019	95% BCA Bootstrap UTL with 95% Coverage	0.019
	95% UPL	0.0187	90% Percentile	0.0145
	90% Chebyshev UPL	0.021	95% Percentile	0.0169
	95% Chebyshev UPL	0.0271	99% Percentile	0.0186
	95% USL	0.019		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	18
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.017	Median	0.006
Maximum	0.019	Third Quartile	0.00965
Mean	0.00769	SD	0.00435
Coefficient of Variation	0.566	Skewness	1.444
Mean of logged Data	-5.002	SD of logged Data	0.524

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.832	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.253	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0179	90% Percentile (z)	0.0133
	95% UPL (t)	0.0153	95% Percentile (z)	0.0148
	95% USL	0.019	99% Percentile (z)	0.0178

Gamma GOF Test

A-D Test Statistic	0.788	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.208	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.913	k star (bias corrected MLE)	3.409
Theta hat (MLE)	0.00196	Theta star (bias corrected MLE)	0.00225
nu hat (MLE)	172.2	nu star (bias corrected)	150
MLE Mean (bias corrected)	0.00769	MLE Sd (bias corrected)	0.00416

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0159	90% Percentile	0.0133
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0161	95% Percentile	0.0156
95% WH Approx. Gamma UTL with	95% Coverage	0.02	99% Percentile	0.0205
95% HW Approx. Gamma UTL with	95% Coverage	0.0205		
	95% WH USL	0.022	95% HW USL	0.0227

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.023	90% Percentile (z)	0.0132
	95% UPL (t)	0.0169	95% Percentile (z)	0.0159
	95% USL	0.0263	99% Percentile (z)	0.0228

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.019
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.019	95% BCA Bootstrap UTL with 95% Coverage	0.019
95% UPL	0.0187	90% Percentile	0.0145
90% Chebyshev UPL	0.021	95% Percentile	0.0169
95% Chebyshev UPL	0.0271	99% Percentile	0.0186
95% USL	0.019		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	16
Minimum	3.5000E-5	First Quartile	9.1000E-5
Second Largest	3.0000E-4	Median	1.1000E-4
Maximum	3.3000E-4	Third Quartile	1.6750E-4
Mean	1.3564E-4	SD	7.6278E-5
Coefficient of Variation	0.562	Skewness	1.437
Mean of logged Data	-9.036	SD of logged Data	0.518

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.268	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	3.1481E-4	90% Percentile (z)	2.3339E-4
95% UPL (t)	2.6984E-4	95% Percentile (z)	2.6110E-4
95% USL	3.3417E-4	99% Percentile (z)	3.1309E-4

Gamma GOF Test

A-D Test Statistic	0.804	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.229	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.979	k star (bias corrected MLE)	3.467
Theta hat (MLE)	3.4086E-5	Theta star (bias corrected MLE)	3.9123E-5
nu hat (MLE)	175.1	nu star (bias corrected)	152.5
MLE Mean (bias corrected)	1.3564E-4	MLE Sd (bias corrected)	7.2846E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.7896E-4	90% Percentile	2.3331E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.8195E-4	95% Percentile	2.7329E-4
95% WH Approx. Gamma UTL with 95% Coverage	3.5064E-4	99% Percentile	3.5928E-4
95% HW Approx. Gamma UTL with 95% Coverage	3.5976E-4		
95% WH USL	3.8493E-4	95% HW USL	3.9780E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.197	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	4.0165E-4	90% Percentile (z)	2.3108E-4
95% UPL (t)	2.9597E-4	95% Percentile (z)	2.7892E-4
95% USL	4.5806E-4	99% Percentile (z)	3.9696E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	3.3000E-4
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	3.3000E-4	95% BCA Bootstrap UTL with 95% Coverage	3.2850E-4
95% UPL	3.2550E-4	90% Percentile	2.6100E-4
90% Chebyshev UPL	3.6961E-4	95% Percentile	2.9850E-4
95% Chebyshev UPL	4.7560E-4	99% Percentile	3.2370E-4
95% USL	3.3000E-4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_taxa-specific benchmark_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	15
Minimum	9.2000E-4	First Quartile	0.0024
Second Largest	0.008	Median	0.0028
Maximum	0.0089	Third Quartile	0.00453
Mean	0.00361	SD	0.00204
Coefficient of Variation	0.566	Skewness	1.45
Mean of logged Data	-5.757	SD of logged Data	0.521

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.00841	90% Percentile (z)	0.00623
	95% UPL (t)	0.00721	95% Percentile (z)	0.00697
	95% USL	0.00893	99% Percentile (z)	0.00836

Gamma GOF Test

A-D Test Statistic	0.799	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.21	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.932	k star (bias corrected MLE)	3.426
Theta hat (MLE)	9.1812E-4	Theta star (bias corrected MLE)	0.00105
nu hat (MLE)	173	nu star (bias corrected)	150.7
MLE Mean (bias corrected)	0.00361	MLE Sd (bias corrected)	0.00195

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00745	90% Percentile	0.00623

95% Hawkins Wixley (HW) Approx. Gamma UPL		0.00753	95% Percentile		0.0073
95% WH Approx. Gamma UTL with	95% Coverage	0.00937	99% Percentile		0.00961
95% HW Approx. Gamma UTL with	95% Coverage	0.00962			
	95% WH USL	0.0103	95% HW USL		0.0106

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0108	90% Percentile (z)		0.00617
	95% UPL (t)	0.00791	95% Percentile (z)		0.00745
	95% USL	0.0123	99% Percentile (z)		0.0106

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	0.0089
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.0089	95% BCA Bootstrap UTL with	95% Coverage	0.00886
	95% UPL	0.00877		90% Percentile	0.00686
	90% Chebyshev UPL	0.00988		95% Percentile	0.00796
	95% Chebyshev UPL	0.0127		99% Percentile	0.00871
	95% USL	0.0089			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_taxa-specific benchmark_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	19
Minimum	2.7000E-5	First Quartile	7.1250E-5
Second Largest	2.4000E-4	Median	8.4000E-5
Maximum	2.6000E-4	Third Quartile	1.3750E-4
Mean	1.0745E-4	SD	6.0624E-5
Coefficient of Variation	0.564	Skewness	1.395
Mean of logged Data	-9.272	SD of logged Data	0.524

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.834	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.256	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.4986E-4	90% Percentile (z)	1.8515E-4
	95% UPL (t)	2.1412E-4	95% Percentile (z)	2.0717E-4
	95% USL	2.6524E-4	99% Percentile (z)	2.4849E-4

Gamma GOF Test

A-D Test Statistic	0.78	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.211	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.186	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.908	k star (bias corrected MLE)	3.405
Theta hat (MLE)	2.7497E-5	Theta star (bias corrected MLE)	3.1555E-5
nu hat (MLE)	171.9	nu star (bias corrected)	149.8
MLE Mean (bias corrected)	1.0745E-4	MLE Sd (bias corrected)	5.8230E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.2219E-4	90% Percentile	1.8553E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.2473E-4	95% Percentile	2.1758E-4
95% WH Approx. Gamma UTL with	95% Coverage	2.7972E-4	99% Percentile	2.8659E-4
95% HW Approx. Gamma UTL with	95% Coverage	2.8733E-4		
	95% WH USL	3.0727E-4	95% HW USL	3.1796E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.178	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	3.2238E-4	90% Percentile (z)	1.8417E-4
	95% UPL (t)	2.3663E-4	95% Percentile (z)	2.2283E-4

95% USL	3.6828E-4	99% Percentile (z)	3.1858E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	2.6000E-4
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	2.6000E-4	95% BCA Bootstrap UTL with 95% Coverage	2.6000E-4
95% UPL	2.5700E-4	90% Percentile	2.0300E-4
90% Chebyshev UPL	2.9341E-4	95% Percentile	2.3850E-4
95% Chebyshev UPL	3.7765E-4	99% Percentile	2.5580E-4
95% USL	2.6000E-4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	18	Number of Non-Detects	3
Number of Distinct Detects	15	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.145	Maximum Non-Detect	0.008
Variance Detected	0.00182	Percent Non-Detects	14.29%
Mean Detected	0.0422	SD Detected	0.0426
Mean of Detected Logged Data	-3.548	SD of Detected Logged Data	0.854

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.72	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.335	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0373	KM SD	0.0402

95% UTL95% Coverage	0.133	95% KM UPL (t)	0.108
90% KM Percentile (z)	0.0888	95% KM Percentile (z)	0.103
99% KM Percentile (z)	0.131	95% KM USL	0.141

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0367	SD	0.0416
95% UTL95% Coverage	0.135	95% UPL (t)	0.11
90% Percentile (z)	0.09	95% Percentile (z)	0.105
99% Percentile (z)	0.134	95% USL	0.144

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.149	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.239	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.207	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.453	k star (bias corrected MLE)	1.248
Theta hat (MLE)	0.029	Theta star (bias corrected MLE)	0.0338
nu hat (MLE)	52.3	nu star (bias corrected)	44.92
MLE Mean (bias corrected)	0.0422		
MLE Sd (bias corrected)	0.0377	95% Percentile of Chisquare (2kstar)	6.92

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.009	Mean	0.0376
Maximum	0.145	Median	0.02
SD	0.041	CV	1.09
k hat (MLE)	1.339	k star (bias corrected MLE)	1.18
Theta hat (MLE)	0.0281	Theta star (bias corrected MLE)	0.0318
nu hat (MLE)	56.25	nu star (bias corrected)	49.55
MLE Mean (bias corrected)	0.0376	MLE Sd (bias corrected)	0.0346
95% Percentile of Chisquare (2kstar)	6.67	90% Percentile	0.0831
95% Percentile	0.106	99% Percentile	0.159

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.155	0.162	95% Approx. Gamma UPL	0.109	0.11
95% Gamma USL	0.174	0.183			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0373	SD (KM)	0.0402
Variance (KM)	0.00161	SE of Mean (KM)	0.00902
k hat (KM)	0.862	k star (KM)	0.77
nu hat (KM)	36.19	nu star (KM)	32.35
theta hat (KM)	0.0433	theta star (KM)	0.0484
80% gamma percentile (KM)	0.0611	90% gamma percentile (KM)	0.0915
95% gamma percentile (KM)	0.123	99% gamma percentile (KM)	0.196

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.153	0.159	95% Approx. Gamma UPL	0.107	0.108
95% KM Gamma Percentile	0.0995	0.0998	95% Gamma USL	0.171	0.181

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.91	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.185	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0367	Mean in Log Scale	-3.831
SD in Original Scale	0.0416	SD in Log Scale	1.065
95% UTL95% Coverage	0.271	95% BCA UTL95% Coverage	0.145
95% Bootstrap (%) UTL95% Coverage	0.145	95% UPL (t)	0.142
90% Percentile (z)	0.0849	95% Percentile (z)	0.125
99% Percentile (z)	0.258	95% USL	0.338

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.731	95% KM UTL (Lognormal)95% Coverage	0.197
KM SD of Logged Data	0.889	95% KM UPL (Lognormal)	0.115
95% KM Percentile Lognormal (z)	0.103	95% KM USL (Lognormal)	0.238

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0367	Mean in Log Scale	-3.83
SD in Original Scale	0.0416	SD in Log Scale	1.058
95% UTL95% Coverage	0.267	95% UPL (t)	0.141
90% Percentile (z)	0.0843	95% Percentile (z)	0.124
99% Percentile (z)	0.255	95% USL	0.333

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	0.145
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.143
95% USL	0.145	95% KM Chebyshev UPL	0.216

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	18	Number of Non-Detects	3
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Data Not Normal at 1% Significance Level

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KM Mean	0.0373	KM SD	0.0402
95% UTL95% Coverage	0.133	95% KM UPL (t)	0.108
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DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0367	SD	0.0416
95% UTL95% Coverage	0.135	95% UPL (t)	0.11
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MLE Sd (bias corrected)	0.0377	95% Percentile of Chisquare (2kstar)	6.92

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MLE Mean (bias corrected)	0.0376	MLE Sd (bias corrected)	0.0346
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Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

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Mean (KM)	0.0373	SD (KM)	0.0402
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Mean in Original Scale	0.0367	Mean in Log Scale	-3.831
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concDL (cadmium_ug/l_awqc_concentration_fish)

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MLE Mean (bias corrected)	0.0376	MLE Sd (bias corrected)	0.0346
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The following statistics are computed using Gamma ROS Statistics on Imputed Data

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	WH	HW		WH	HW
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95% KM Gamma Percentile	0.0995	0.0998	95% Gamma USL	0.171	0.181

Lognormal GOF Test on Detected Observations Only

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10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	

Lilliefors Test Statistic	0.174	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.185	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0367	Mean in Log Scale	-3.831
SD in Original Scale	0.0416	SD in Log Scale	1.065
95% UTL95% Coverage	0.271	95% BCA UTL95% Coverage	0.145
95% Bootstrap (%) UTL95% Coverage	0.145	95% UPL (t)	0.142
90% Percentile (z)	0.0849	95% Percentile (z)	0.125
99% Percentile (z)	0.258	95% USL	0.338

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.731	95% KM UTL (Lognormal)95% Coverage	0.197
KM SD of Logged Data	0.889	95% KM UPL (Lognormal)	0.115
95% KM Percentile Lognormal (z)	0.103	95% KM USL (Lognormal)	0.238

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0367	Mean in Log Scale	-3.83
SD in Original Scale	0.0416	SD in Log Scale	1.058
95% UTL95% Coverage	0.267	95% UPL (t)	0.141
90% Percentile (z)	0.0843	95% Percentile (z)	0.124
99% Percentile (z)	0.255	95% USL	0.333

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Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	0.145
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.143
95% USL	0.145	95% KM Chebyshev UPL	0.216

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concDL (cadmium_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	21
Minimum	0.009	First Quartile	0.022
Second Largest	0.21	Median	0.042

Maximum	0.26	Third Quartile	0.078
Mean	0.0635	SD	0.0666
Coefficient of Variation	1.049	Skewness	1.922
Mean of logged Data	-3.192	SD of logged Data	0.949

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.756	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.222	90% Percentile (z)	0.149
	95% UPL (t)	0.181	95% Percentile (z)	0.173
	95% USL	0.235	99% Percentile (z)	0.219

Gamma GOF Test

A-D Test Statistic	0.481	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.763	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.142	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.289	k star (bias corrected MLE)	1.137
Theta hat (MLE)	0.0493	Theta star (bias corrected MLE)	0.0559
nu hat (MLE)	54.14	nu star (bias corrected)	47.74
MLE Mean (bias corrected)	0.0635	MLE Sd (bias corrected)	0.0596

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.188	90% Percentile	0.142
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.192	95% Percentile	0.182
95% WH Approx. Gamma UTL with	95% Coverage	0.268	99% Percentile	0.274
95% HW Approx. Gamma UTL with	95% Coverage	0.285		
	95% WH USL	0.301	95% HW USL	0.324

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.974	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.078	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.39	90% Percentile (z)	0.139
	95% UPL (t)	0.219	95% Percentile (z)	0.196
	95% USL	0.475	99% Percentile (z)	0.374

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	0.26
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.26	95% BCA Bootstrap UTL with 95% Coverage	0.26
95% UPL	0.255	90% Percentile	0.13
90% Chebyshev UPL	0.268	95% Percentile	0.21
95% Chebyshev UPL	0.361	99% Percentile	0.25
95% USL	0.26		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	21
Minimum	0.009	First Quartile	0.022
Second Largest	0.21	Median	0.042
Maximum	0.26	Third Quartile	0.078
Mean	0.0635	SD	0.0666
Coefficient of Variation	1.049	Skewness	1.922
Mean of logged Data	-3.192	SD of logged Data	0.949

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.756	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.222		90% Percentile (z)	0.149
	95% UPL (t)	0.181		95% Percentile (z)	0.173
	95% USL	0.235		99% Percentile (z)	0.219

Gamma GOF Test

A-D Test Statistic	0.481	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.763	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.142	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.289	k star (bias corrected MLE)	1.137
Theta hat (MLE)	0.0493	Theta star (bias corrected MLE)	0.0559
nu hat (MLE)	54.14	nu star (bias corrected)	47.74
MLE Mean (bias corrected)	0.0635	MLE Sd (bias corrected)	0.0596

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.188	90% Percentile	0.142
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.192	95% Percentile	0.182
95% WH Approx. Gamma UTL with 95% Coverage	0.268	99% Percentile	0.274
95% HW Approx. Gamma UTL with 95% Coverage	0.285		
95% WH USL	0.301	95% HW USL	0.324

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.974	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.078	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.39		90% Percentile (z)	0.139
	95% UPL (t)	0.219		95% Percentile (z)	0.196
	95% USL	0.475		99% Percentile (z)	0.374

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		21		95% UTL with 95% Coverage	0.26
Approx, f used to compute achieved CC		1.105	Approximate Actual Confidence Coefficient achieved by UTL		0.659
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.26	95% BCA Bootstrap UTL with	95% Coverage	0.26
	95% UPL	0.255		90% Percentile	0.13

90% Chebyshev UPL	0.268	95% Percentile	0.21
95% Chebyshev UPL	0.361	99% Percentile	0.25
95% USL	0.26		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	21
Minimum	0.009	First Quartile	0.022
Second Largest	0.21	Median	0.042
Maximum	0.26	Third Quartile	0.078
Mean	0.0635	SD	0.0666
Coefficient of Variation	1.049	Skewness	1.922
Mean of logged Data	-3.192	SD of logged Data	0.949

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.756	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.222	90% Percentile (z)	0.149
	95% UPL (t)	0.181	95% Percentile (z)	0.173
	95% USL	0.235	99% Percentile (z)	0.219

Gamma GOF Test

A-D Test Statistic	0.481	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.763	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.142	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.289	k star (bias corrected MLE)	1.137
Theta hat (MLE)	0.0493	Theta star (bias corrected MLE)	0.0559

nu hat (MLE)	54.14	nu star (bias corrected)	47.74
MLE Mean (bias corrected)	0.0635	MLE Sd (bias corrected)	0.0596

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.188	90% Percentile	0.142
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.192	95% Percentile	0.182
95% WH Approx. Gamma UTL with 95% Coverage	0.268	99% Percentile	0.274
95% HW Approx. Gamma UTL with 95% Coverage	0.285		
95% WH USL	0.301	95% HW USL	0.324

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.974	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.078	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.39	90% Percentile (z)	0.139
95% UPL (t)	0.219	95% Percentile (z)	0.196
95% USL	0.475	99% Percentile (z)	0.374

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	0.26
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.26	95% BCA Bootstrap UTL with 95% Coverage	0.26
95% UPL	0.255	90% Percentile	0.13
90% Chebyshev UPL	0.268	95% Percentile	0.21
95% Chebyshev UPL	0.361	99% Percentile	0.25
95% USL	0.26		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	16
Minimum	1.4000E-4	First Quartile	2.0000E-4

Second Largest	0.0023	Median	3.6000E-4
Maximum	0.0026	Third Quartile	6.4000E-4
Mean	6.7000E-4	SD	7.4229E-4
Coefficient of Variation	1.108	Skewness	1.785
Mean of logged Data	-7.755	SD of logged Data	0.917

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.695	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.326	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.00243	90% Percentile (z)	0.00162
	95% UPL (t)	0.00198	95% Percentile (z)	0.00189
	95% USL	0.00259	99% Percentile (z)	0.0024

Gamma GOF Test

A-D Test Statistic	1.224	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.764	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.211	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.194	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.26	k star (bias corrected MLE)	1.112
Theta hat (MLE)	5.3176E-4	Theta star (bias corrected MLE)	6.0267E-4
nu hat (MLE)	52.92	nu star (bias corrected)	46.69
MLE Mean (bias corrected)	6.7000E-4	MLE Sd (bias corrected)	6.3544E-4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.00199	90% Percentile	0.0015
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.00201	95% Percentile	0.00193
95% WH Approx. Gamma UTL with	95% Coverage	0.00285	99% Percentile	0.00293
95% HW Approx. Gamma UTL with	95% Coverage	0.00299		
	95% WH USL	0.00319	95% HW USL	0.00339

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.91	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.141	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.00377	90% Percentile (z)	0.00139
	95% UPL (t)	0.00216	95% Percentile (z)	0.00194
	95% USL	0.00457	99% Percentile (z)	0.00362

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		21	95% UTL with 95% Coverage	0.0026
Approx, f used to compute achieved CC		1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.0026	95% BCA Bootstrap UTL with 95% Coverage	0.0026
	95% UPL	0.00257	90% Percentile	0.002
	90% Chebyshev UPL	0.00295	95% Percentile	0.0023
	95% Chebyshev UPL	0.00398	99% Percentile	0.00254
	95% USL	0.0026		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	19
Minimum	0.0012	First Quartile	0.0031
Second Largest	0.028	Median	0.0059
Maximum	0.036	Third Quartile	0.011
Mean	0.00874	SD	0.00908
Coefficient of Variation	1.039	Skewness	1.933
Mean of logged Data	-5.171	SD of logged Data	0.948

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.761	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.238	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0303	90% Percentile (z)	0.0204
	95% UPL (t)	0.0248	95% Percentile (z)	0.0237
	95% USL	0.0322	99% Percentile (z)	0.0299

Gamma GOF Test

A-D Test Statistic	0.447	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.763	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.138	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.301	k star (bias corrected MLE)	1.147
Theta hat (MLE)	0.00671	Theta star (bias corrected MLE)	0.00762
nu hat (MLE)	54.66	nu star (bias corrected)	48.18
MLE Mean (bias corrected)	0.00874	MLE Sd (bias corrected)	0.00816

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0258	90% Percentile	0.0194
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0264	95% Percentile	0.0249
95% WH Approx. Gamma UTL with 95% Coverage	0.0368	99% Percentile	0.0376
95% HW Approx. Gamma UTL with 95% Coverage	0.0391		
95% WH USL	0.0412	95% HW USL	0.0444

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.977	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0796	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0537	90% Percentile (z)	0.0191
	95% UPL (t)	0.0302	95% Percentile (z)	0.027
	95% USL	0.0655	99% Percentile (z)	0.0515

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with	95% Coverage	0.036
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL		0.659
		Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.036	95% BCA Bootstrap UTL with	95% Coverage	0.036

95% UPL	0.0352	90% Percentile	0.017
90% Chebyshev UPL	0.0366	95% Percentile	0.028
95% Chebyshev UPL	0.0492	99% Percentile	0.0344
95% USL	0.036		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (calcium_ug/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	14000	First Quartile	18175
Second Largest	37400	Median	21150
Maximum	41000	Third Quartile	29275
Mean	24100	SD	7677
Coefficient of Variation	0.319	Skewness	0.716
Mean of logged Data	10.04	SD of logged Data	0.307

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.907	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.199	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	42133	90% Percentile (z)	33938
95% UPL (t)	37606	95% Percentile (z)	36727
95% USL	44081	99% Percentile (z)	41959

Gamma GOF Test

A-D Test Statistic	0.741	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.189	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.185	Data Not Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.04	k star (bias corrected MLE)	9.568

Theta hat (MLE)	2182	Theta star (bias corrected MLE)	2519
nu hat (MLE)	485.9	nu star (bias corrected)	421
MLE Mean (bias corrected)	24100	MLE Sd (bias corrected)	7791

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	38654	90% Percentile	34468
95% Hawkins Wixley (HW) Approx. Gamma UPL	38838	95% Percentile	38180
95% WH Approx. Gamma UTL with 95% Coverage	44971	99% Percentile	45815
95% HW Approx. Gamma UTL with 95% Coverage	45479		
95% WH USL	47890	95% HW USL	48585

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.937	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	47322	90% Percentile (z)	34105
95% UPL (t)	39491	95% Percentile (z)	38127
95% USL	51153	99% Percentile (z)	46994

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	41000
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	41000	95% BCA Bootstrap UTL with 95% Coverage	41000
95% UPL	40460	90% Percentile	33870
90% Chebyshev UPL	47648	95% Percentile	37230
95% Chebyshev UPL	58314	99% Percentile	40244
95% USL	41000		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (chloride_mg/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0

Number of Distinct Observations	19		
Number of Detects	18	Number of Non-Detects	4
Number of Distinct Detects	15	Number of Distinct Non-Detects	4
Minimum Detect	0.16	Minimum Non-Detect	0.6
Maximum Detect	5.4	Maximum Non-Detect	1.7
Variance Detected	2.611	Percent Non-Detects	18.18%
Mean Detected	1.321	SD Detected	1.616
Mean of Detected Logged Data	-0.303	SD of Detected Logged Data	1.069

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.291	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.162	KM SD	1.465
95% UTL95% Coverage	4.603	95% KM UPL (t)	3.739
90% KM Percentile (z)	3.039	95% KM Percentile (z)	3.571
99% KM Percentile (z)	4.569	95% KM USL	4.974

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.19	SD	1.486
95% UTL95% Coverage	4.679	95% UPL (t)	3.803
90% Percentile (z)	3.094	95% Percentile (z)	3.633
99% Percentile (z)	4.646	95% USL	5.056

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.993	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.221	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.209	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.994	k star (bias corrected MLE)	0.865
Theta hat (MLE)	1.329	Theta star (bias corrected MLE)	1.527
nu hat (MLE)	35.78	nu star (bias corrected)	31.15
MLE Mean (bias corrected)	1.321		
MLE Sd (bias corrected)	1.42	95% Percentile of Chisquare (2kstar)	5.458

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0416	Mean	1.133
Maximum	5.4	Median	0.49
SD	1.512	CV	1.335
k hat (MLE)	0.889	k star (bias corrected MLE)	0.798
Theta hat (MLE)	1.275	Theta star (bias corrected MLE)	1.42
nu hat (MLE)	39.1	nu star (bias corrected)	35.1
MLE Mean (bias corrected)	1.133	MLE Sd (bias corrected)	1.268
95% Percentile of Chisquare (2kstar)	5.181	90% Percentile	2.756
95% Percentile	3.679	99% Percentile	5.857

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5.535	5.918	95% Approx. Gamma UPL	3.73	3.809
95% Gamma USL	6.463	7.054			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.162	SD (KM)	1.465
Variance (KM)	2.145	SE of Mean (KM)	0.322
k hat (KM)	0.63	k star (KM)	0.574
nu hat (KM)	27.71	nu star (KM)	25.27
theta hat (KM)	1.845	theta star (KM)	2.024
80% gamma percentile (KM)	1.916	90% gamma percentile (KM)	3.053
95% gamma percentile (KM)	4.249	99% gamma percentile (KM)	7.154

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5.193	5.427	95% Approx. Gamma UPL	3.571	3.592
95% KM Gamma Percentile	3.302	3.298	95% Gamma USL	6.021	6.403

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.914	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.159	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.185	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.159	Mean in Log Scale	-0.404
SD in Original Scale	1.496	SD in Log Scale	0.99

95% UTL95% Coverage	6.835	95% BCA UTL95% Coverage	5.4
95% Bootstrap (%) UTL95% Coverage	5.4	95% UPL (t)	3.812
90% Percentile (z)	2.375	95% Percentile (z)	3.403
99% Percentile (z)	6.683	95% USL	8.788

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.422	95% KM UTL (Lognormal)95% Coverage	6.875
KM SD of Logged Data	1	95% KM UPL (Lognormal)	3.812
95% KM Percentile Lognormal (z)	3.399	95% KM USL (Lognormal)	8.863

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.19	Mean in Log Scale	-0.359
SD in Original Scale	1.486	SD in Log Scale	0.99
95% UTL95% Coverage	7.138	95% UPL (t)	3.982
90% Percentile (z)	2.482	95% Percentile (z)	3.556
99% Percentile (z)	6.979	95% USL	9.175

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Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	5.4
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5.277
95% USL	5.4	95% KM Chebyshev UPL	7.69

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concDL (copper_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	4	Number of Non-Detects	17
Number of Distinct Detects	4	Number of Distinct Non-Detects	17
Minimum Detect	0.88	Minimum Non-Detect	0.08
Maximum Detect	1.51	Maximum Non-Detect	1.56
Variance Detected	0.0821	Percent Non-Detects	80.95%
Mean Detected	1.293	SD Detected	0.287
Mean of Detected Logged Data	0.235	SD of Detected Logged Data	0.249

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.846	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level	
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KM Mean	0.328	KM SD	0.499
95% UTL95% Coverage	1.511	95% KM UPL (t)	1.209
90% KM Percentile (z)	0.968	95% KM Percentile (z)	1.149
99% KM Percentile (z)	1.489	95% KM USL	1.616

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.492	SD	0.446
95% UTL95% Coverage	1.549	95% UPL (t)	1.279
90% Percentile (z)	1.063	95% Percentile (z)	1.225
99% Percentile (z)	1.529	95% USL	1.642

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A-D Test Statistic	0.514	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level	
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5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	23.43	k star (bias corrected MLE)	6.024
Theta hat (MLE)	0.0552	Theta star (bias corrected MLE)	0.215
nu hat (MLE)	187.4	nu star (bias corrected)	48.19
MLE Mean (bias corrected)	1.293		
MLE Sd (bias corrected)	0.527	95% Percentile of Chisquare (2kstar)	21.09

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For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.268	Mean	0.475
Maximum	1.51	Median	0.268
SD	0.423	CV	0.891

k hat (MLE)	2.236	k star (bias corrected MLE)	1.949
Theta hat (MLE)	0.212	Theta star (bias corrected MLE)	0.244
nu hat (MLE)	93.93	nu star (bias corrected)	81.84
MLE Mean (bias corrected)	0.475	MLE Sd (bias corrected)	0.34
95% Percentile of Chisquare (2kstar)	9.321	90% Percentile	0.929
95% Percentile	1.135	99% Percentile	1.593

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.552	1.568	95% Approx. Gamma UPL	1.158	1.149
95% Gamma USL	1.706	1.737			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.328	SD (KM)	0.499
Variance (KM)	0.249	SE of Mean (KM)	0.13
k hat (KM)	0.431	k star (KM)	0.401
nu hat (KM)	18.11	nu star (KM)	16.86
theta hat (KM)	0.76	theta star (KM)	0.817
80% gamma percentile (KM)	0.529	90% gamma percentile (KM)	0.925
95% gamma percentile (KM)	1.36	99% gamma percentile (KM)	2.454

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.702	1.753	95% Approx. Gamma UPL	1.103	1.084
95% KM Gamma Percentile	1.004	0.978	95% Gamma USL	1.951	2.044

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Shapiro Wilk Test Statistic	0.812	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
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Mean in Original Scale	0.641	Mean in Log Scale	-0.536
SD in Original Scale	0.343	SD in Log Scale	0.397
95% UTL95% Coverage	1.499	95% BCA UTL95% Coverage	1.51
95% Bootstrap (%) UTL95% Coverage	1.51	95% UPL (t)	1.179
90% Percentile (z)	0.973	95% Percentile (z)	1.124
99% Percentile (z)	1.473	95% USL	1.629

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.958	95% KM UTL (Lognormal)95% Coverage	1.999
KM SD of Logged Data	1.118	95% KM UPL (Lognormal)	1.016
95% KM Percentile Lognormal (z)	0.888	95% KM USL (Lognormal)	2.526

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Mean in Original Scale	0.492	Mean in Log Scale	-1.088
SD in Original Scale	0.446	SD in Log Scale	0.927
95% UTL95% Coverage	3.037	95% UPL (t)	1.731
90% Percentile (z)	1.106	95% Percentile (z)	1.548
99% Percentile (z)	2.913	95% USL	3.687

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Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.555
95% USL	1.56	95% KM Chebyshev UPL	2.555

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90% Percentile (z)	0.973	95% Percentile (z)	1.124
99% Percentile (z)	1.473	95% USL	1.629

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KM Mean of Logged Data	-1.958	95% KM UTL (Lognormal)95% Coverage	1.999
KM SD of Logged Data	1.118	95% KM UPL (Lognormal)	1.016
95% KM Percentile Lognormal (z)	0.888	95% KM USL (Lognormal)	2.526

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Mean in Original Scale	0.492	Mean in Log Scale	-1.088
SD in Original Scale	0.446	SD in Log Scale	0.927
95% UTL95% Coverage	3.037	95% UPL (t)	1.731
90% Percentile (z)	1.106	95% Percentile (z)	1.548
99% Percentile (z)	2.913	95% USL	3.687

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Order of Statistic, r	21	95% UTL with95% Coverage	1.56
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.555
95% USL	1.56	95% KM Chebyshev UPL	2.555

Table C3-5
ProUCL Output for Porewater BTVs and BTV HQs, Approach B
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

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concDL (copper_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	19
Minimum	0.036	First Quartile	0.21
Second Largest	1.6	Median	0.54
Maximum	4.3	Third Quartile	1.2
Mean	0.774	SD	0.949
Coefficient of Variation	1.226	Skewness	2.771
Mean of logged Data	-0.881	SD of logged Data	1.235

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.694	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.218	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3.023	90% Percentile (z)	1.99
	95% UPL (t)	2.449	95% Percentile (z)	2.334
	95% USL	3.222	99% Percentile (z)	2.981

Gamma GOF Test

A-D Test Statistic	0.233	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.773	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0895	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.195	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.932	k star (bias corrected MLE)	0.83
Theta hat (MLE)	0.831	Theta star (bias corrected MLE)	0.932
nu hat (MLE)	39.13	nu star (bias corrected)	34.87
MLE Mean (bias corrected)	0.774	MLE Sd (bias corrected)	0.849

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.558	90% Percentile	1.865
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.687	95% Percentile	2.478
95% WH Approx. Gamma UTL with 95% Coverage	3.8	99% Percentile	3.919
95% HW Approx. Gamma UTL with 95% Coverage	4.205		
95% WH USL	4.308	95% HW USL	4.855

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.976	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.109	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	7.741	90% Percentile (z)	2.017
95% UPL (t)	3.665	95% Percentile (z)	3.158
95% USL	10.03	99% Percentile (z)	7.326

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	4.3
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	4.3	95% BCA Bootstrap UTL with 95% Coverage	4.3
95% UPL	4.03	90% Percentile	1.5
90% Chebyshev UPL	3.687	95% Percentile	1.6
95% Chebyshev UPL	5.006	99% Percentile	3.76
95% USL	4.3		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	19
Minimum	0.036	First Quartile	0.21
Second Largest	1.6	Median	0.54
Maximum	4.3	Third Quartile	1.2
Mean	0.774	SD	0.949
Coefficient of Variation	1.226	Skewness	2.771

Mean of logged Data	-0.881	SD of logged Data	1.235

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.694	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.218	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3.023	90% Percentile (z)	1.99
	95% UPL (t)	2.449	95% Percentile (z)	2.334
	95% USL	3.222	99% Percentile (z)	2.981

Gamma GOF Test

A-D Test Statistic	0.233	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.773	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0895	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.195	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.932	k star (bias corrected MLE)	0.83
Theta hat (MLE)	0.831	Theta star (bias corrected MLE)	0.932
nu hat (MLE)	39.13	nu star (bias corrected)	34.87
MLE Mean (bias corrected)	0.774	MLE Sd (bias corrected)	0.849

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.558	90% Percentile	1.865
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.687	95% Percentile	2.478
95% WH Approx. Gamma UTL with 95% Coverage	3.8	99% Percentile	3.919
95% HW Approx. Gamma UTL with 95% Coverage	4.205		
95% WH USL	4.308	95% HW USL	4.855

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.976	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.109	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	7.741	90% Percentile (z)	2.017

95% UPL (t)	3.665	95% Percentile (z)	3.158
95% USL	10.03	99% Percentile (z)	7.326

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	4.3
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	4.3	95% BCA Bootstrap UTL with 95% Coverage	4.3
95% UPL	4.03	90% Percentile	1.5
90% Chebyshev UPL	3.687	95% Percentile	1.6
95% Chebyshev UPL	5.006	99% Percentile	3.76
95% USL	4.3		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	19
Minimum	0.036	First Quartile	0.21
Second Largest	1.6	Median	0.54
Maximum	4.3	Third Quartile	1.2
Mean	0.774	SD	0.949
Coefficient of Variation	1.226	Skewness	2.771
Mean of logged Data	-0.881	SD of logged Data	1.235

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.694	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.218	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data appear Normal at 1% Significance Level	

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	3.023	90% Percentile (z)	1.99
95% UPL (t)	2.449	95% Percentile (z)	2.334

95% USL	3.222	99% Percentile (z)	2.981

Gamma GOF Test

A-D Test Statistic	0.233	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.773	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0895	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.195	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.932	k star (bias corrected MLE)	0.83
Theta hat (MLE)	0.831	Theta star (bias corrected MLE)	0.932
nu hat (MLE)	39.13	nu star (bias corrected)	34.87
MLE Mean (bias corrected)	0.774	MLE Sd (bias corrected)	0.849

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.558	90% Percentile	1.865
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.687	95% Percentile	2.478
95% WH Approx. Gamma UTL with 95% Coverage	3.8	99% Percentile	3.919
95% HW Approx. Gamma UTL with 95% Coverage	4.205		
95% WH USL	4.308	95% HW USL	4.855

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.976	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.109	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	7.741	90% Percentile (z)	2.017
95% UPL (t)	3.665	95% Percentile (z)	3.158
95% USL	10.03	99% Percentile (z)	7.326

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	4.3
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	4.3	95% BCA Bootstrap UTL with 95% Coverage	4.3
95% UPL	4.03	90% Percentile	1.5
90% Chebyshev UPL	3.687	95% Percentile	1.6
95% Chebyshev UPL	5.006	99% Percentile	3.76
95% USL	4.3		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_taxa-specific benchmark_hq_signif_fish)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	18
Minimum	0.0044	First Quartile	0.028
Second Largest	0.16	Median	0.056
Maximum	0.25	Third Quartile	0.12
Mean	0.0767	SD	0.0617
Coefficient of Variation	0.805	Skewness	1.228
Mean of logged Data	-2.945	SD of logged Data	1.002

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.898	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.155	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.223	90% Percentile (z)	0.156
95% UPL (t)	0.186	95% Percentile (z)	0.178
95% USL	0.236	99% Percentile (z)	0.22

Gamma GOF Test

A-D Test Statistic	0.12	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.759	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.089	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.193	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.47	k star (bias corrected MLE)	1.292
Theta hat (MLE)	0.0522	Theta star (bias corrected MLE)	0.0594
nu hat (MLE)	61.75	nu star (bias corrected)	54.26
MLE Mean (bias corrected)	0.0767	MLE Sd (bias corrected)	0.0675

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.219	90% Percentile	0.166
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.231	95% Percentile	0.21
95% WH Approx. Gamma UTL with 95% Coverage	0.307	99% Percentile	0.311
95% HW Approx. Gamma UTL with 95% Coverage	0.338		
95% WH USL	0.342	95% HW USL	0.382

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.956	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.105	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.567	90% Percentile (z)	0.19
95% UPL (t)	0.309	95% Percentile (z)	0.274
95% USL	0.699	99% Percentile (z)	0.542

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	0.25
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.25	95% BCA Bootstrap UTL with 95% Coverage	0.16
95% UPL	0.241	90% Percentile	0.16
90% Chebyshev UPL	0.266	95% Percentile	0.16
95% Chebyshev UPL	0.352	99% Percentile	0.232
95% USL	0.25		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	18
Minimum	0.067	First Quartile	0.33
Second Largest	3.2	Median	1
Maximum	9.1	Third Quartile	2.2
Mean	1.472	SD	1.993

Coefficient of Variation	1.354	Skewness	3.047
Mean of logged Data	-0.307	SD of logged Data	1.282

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.647	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.24	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	6.198	90% Percentile (z)	4.027
95% UPL (t)	4.991	95% Percentile (z)	4.751
95% USL	6.616	99% Percentile (z)	6.109

Gamma GOF Test

A-D Test Statistic	0.291	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.778	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.106	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.196	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.849	k star (bias corrected MLE)	0.759
Theta hat (MLE)	1.734	Theta star (bias corrected MLE)	1.939
nu hat (MLE)	35.65	nu star (bias corrected)	31.89
MLE Mean (bias corrected)	1.472	MLE Sd (bias corrected)	1.69

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4.987	90% Percentile	3.625
95% Hawkins Wixley (HW) Approx. Gamma UPL	5.217	95% Percentile	4.866
95% WH Approx. Gamma UTL with 95% Coverage	7.504	99% Percentile	7.81
95% HW Approx. Gamma UTL with 95% Coverage	8.284		
95% WH USL	8.539	95% HW USL	9.607

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.978	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.118	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	15.38		90% Percentile (z)	3.805
	95% UPL (t)	7.075		95% Percentile (z)	6.062
	95% USL	20.12		99% Percentile (z)	14.53

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	21	95% UTL with	95% Coverage	9.1
	Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL		0.659
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	9.1	95% BCA Bootstrap UTL with	95% Coverage	9.1
	95% UPL	8.51		90% Percentile	3
	90% Chebyshev UPL	7.593		95% Percentile	3.2
	95% Chebyshev UPL	10.37		99% Percentile	7.92
	95% USL	9.1			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (doc_mg/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	17	Number of Non-Detects	5
Number of Distinct Detects	16	Number of Distinct Non-Detects	5
Minimum Detect	0.28	Minimum Non-Detect	0.07
Maximum Detect	3.05	Maximum Non-Detect	6.19
Variance Detected	0.536	Percent Non-Detects	22.73%
Mean Detected	0.964	SD Detected	0.732
Mean of Detected Logged Data	-0.266	SD of Detected Logged Data	0.681

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.819	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.235	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.898	KM SD	0.701
95% UTL95% Coverage	2.545	95% KM UPL (t)	2.132
90% KM Percentile (z)	1.797	95% KM Percentile (z)	2.052
99% KM Percentile (z)	2.53	95% KM USL	2.723

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.08	SD	0.844
95% UTL95% Coverage	3.064	95% UPL (t)	2.566
90% Percentile (z)	2.162	95% Percentile (z)	2.469
99% Percentile (z)	3.045	95% USL	3.278

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.491	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.748	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.153	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.335	k star (bias corrected MLE)	1.962
Theta hat (MLE)	0.413	Theta star (bias corrected MLE)	0.491
nu hat (MLE)	79.38	nu star (bias corrected)	66.7
MLE Mean (bias corrected)	0.964		
MLE Sd (bias corrected)	0.688	95% Percentile of Chisquare (2kstar)	9.364

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.875
Maximum	3.05	Median	0.725
SD	0.675	CV	0.771
k hat (MLE)	1.604	k star (bias corrected MLE)	1.416
Theta hat (MLE)	0.545	Theta star (bias corrected MLE)	0.618
nu hat (MLE)	70.6	nu star (bias corrected)	62.3
MLE Mean (bias corrected)	0.875	MLE Sd (bias corrected)	0.735
95% Percentile of Chisquare (2kstar)	7.521	90% Percentile	1.849
95% Percentile	2.324	99% Percentile	3.4

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.228	3.624	95% Approx. Gamma UPL	2.364	2.544

95% Gamma USL	3.657	4.181

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.898	SD (KM)	0.701
Variance (KM)	0.492	SE of Mean (KM)	0.166
k hat (KM)	1.638	k star (KM)	1.445
nu hat (KM)	72.09	nu star (KM)	63.59
theta hat (KM)	0.548	theta star (KM)	0.621
80% gamma percentile (KM)	1.395	90% gamma percentile (KM)	1.888
95% gamma percentile (KM)	2.368	99% gamma percentile (KM)	3.455

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.138	3.351	95% Approx. Gamma UPL	2.319	2.4
95% KM Gamma Percentile	2.178	2.241	95% Gamma USL	3.543	3.837

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.957	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.91	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.116	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.19	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.873	Mean in Log Scale	-0.364
SD in Original Scale	0.669	SD in Log Scale	0.684
95% UTL95% Coverage	3.466	95% BCA UTL95% Coverage	3.05
95% Bootstrap (%) UTL95% Coverage	3.05	95% UPL (t)	2.315
90% Percentile (z)	1.67	95% Percentile (z)	2.141
99% Percentile (z)	3.413	95% USL	4.123

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.412	95% KM UTL (Lognormal)95% Coverage	4.739
KM SD of Logged Data	0.838	95% KM UPL (Lognormal)	2.892
95% KM Percentile Lognormal (z)	2.628	95% KM USL (Lognormal)	5.862

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.08	Mean in Log Scale	-0.266
SD in Original Scale	0.844	SD in Log Scale	0.98
95% UTL95% Coverage	7.65	95% UPL (t)	4.294
90% Percentile (z)	2.689	95% Percentile (z)	3.838
99% Percentile (z)	7.482	95% USL	9.809

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	6.19
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5.88
95% USL	6.19	95% KM Chebyshev UPL	4.024

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (hardness_mg/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	22
Minimum	47	First Quartile	58.78
Second Largest	129	Median	68.05
Maximum	133	Third Quartile	96.63
Mean	79.23	SD	25.52
Coefficient of Variation	0.322	Skewness	0.756
Mean of logged Data	4.326	SD of logged Data	0.308

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.894	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.231	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	139.2	90% Percentile (z)	111.9
	95% UPL (t)	124.1	95% Percentile (z)	121.2
	95% USL	145.6	99% Percentile (z)	138.6

Gamma GOF Test

A-D Test Statistic	0.813	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.743	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.226	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.185	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.89	k star (bias corrected MLE)	9.438
Theta hat (MLE)	7.273	Theta star (bias corrected MLE)	8.395
nu hat (MLE)	479.3	nu star (bias corrected)	415.3
MLE Mean (bias corrected)	79.23	MLE Sd (bias corrected)	25.79

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	127.4	90% Percentile	113.6
95% Hawkins Wixley (HW) Approx. Gamma UPL	128	95% Percentile	125.9
95% WH Approx. Gamma UTL with 95% Coverage	148.4	99% Percentile	151.2
95% HW Approx. Gamma UTL with 95% Coverage	150		
95% WH USL	158.1	95% HW USL	160.3

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.925	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.215	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	156	90% Percentile (z)	112.3
95% UPL (t)	130.1	95% Percentile (z)	125.6
95% USL	168.7	99% Percentile (z)	154.9

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	133
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	133	95% BCA Bootstrap UTL with 95% Coverage	133
95% UPL	132.4	90% Percentile	111.4
90% Chebyshev UPL	157.5	95% Percentile	128.2
95% Chebyshev UPL	193	99% Percentile	132.2
95% USL	133		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	20		
Number of Detects	9	Number of Non-Detects	12
Number of Distinct Detects	9	Number of Distinct Non-Detects	11
Minimum Detect	21.7	Minimum Non-Detect	8
Maximum Detect	5500	Maximum Non-Detect	100
Variance Detected	3514339	Percent Non-Detects	57.14%
Mean Detected	1256	SD Detected	1875
Mean of Detected Logged Data	6.071	SD of Detected Logged Data	1.696

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.693	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.764	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.355	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.316	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	543.4	KM SD	1311
95% UTL95% Coverage	3652	95% KM UPL (t)	2858
90% KM Percentile (z)	2224	95% KM Percentile (z)	2700
99% KM Percentile (z)	3594	95% KM USL	3927

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	546.5	SD	1342
95% UTL95% Coverage	3729	95% UPL (t)	2916
90% Percentile (z)	2267	95% Percentile (z)	2755
99% Percentile (z)	3669	95% USL	4010

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.344	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.764	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.198	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.292	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.583	k star (bias corrected MLE)	0.463
Theta hat (MLE)	2154	Theta star (bias corrected MLE)	2714
nu hat (MLE)	10.49	nu star (bias corrected)	8.329

MLE Mean (bias corrected)	1256		
MLE Sd (bias corrected)	1846	95% Percentile of Chisquare (2kstar)	3.654

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	538.2
Maximum	5500	Median	0.01
SD	1346	CV	2.5
k hat (MLE)	0.125	k star (bias corrected MLE)	0.139
Theta hat (MLE)	4311	Theta star (bias corrected MLE)	3879
nu hat (MLE)	5.244	nu star (bias corrected)	5.828
MLE Mean (bias corrected)	538.2	MLE Sd (bias corrected)	1445
95% Percentile of Chisquare (2kstar)	1.549	90% Percentile	1576
95% Percentile	3005	99% Percentile	7220

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4323	5567	95% Approx. Gamma UPL	2253	2425
95% Gamma USL	5259	7158			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	543.4	SD (KM)	1311
Variance (KM)	1719546	SE of Mean (KM)	303.5
k hat (KM)	0.172	k star (KM)	0.179
nu hat (KM)	7.211	nu star (KM)	7.514
theta hat (KM)	3165	theta star (KM)	3037
80% gamma percentile (KM)	671.6	90% gamma percentile (KM)	1638
95% gamma percentile (KM)	2879	99% gamma percentile (KM)	6359

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3623	3934	95% Approx. Gamma UPL	2041	1999
95% KM Gamma Percentile	1795	1722	95% Gamma USL	4317	4852

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.982	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.113	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.252	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	540.3	Mean in Log Scale	3.282
SD in Original Scale	1345	SD in Log Scale	2.72
95% UTL95% Coverage	16841	95% BCA UTL95% Coverage	5500
95% Bootstrap (%) UTL95% Coverage	5500	95% UPL (t)	3242
90% Percentile (z)	869.5	95% Percentile (z)	2336
99% Percentile (z)	14915	95% USL	29768

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.831	95% KM UTL (Lognormal)95% Coverage	8760
KM SD of Logged Data	2.213	95% KM UPL (Lognormal)	2293
95% KM Percentile Lognormal (z)	1756	95% KM USL (Lognormal)	13923

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	546.5	Mean in Log Scale	3.943
SD in Original Scale	1342	SD in Log Scale	2.257
95% UTL95% Coverage	10865	95% UPL (t)	2770
90% Percentile (z)	929.7	95% Percentile (z)	2111
99% Percentile (z)	9824	95% USL	17428

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	5500
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5275
95% USL	5500	95% KM Chebyshev UPL	6394

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	20		
Number of Detects	9	Number of Non-Detects	12
Number of Distinct Detects	9	Number of Distinct Non-Detects	11
Minimum Detect	21.7	Minimum Non-Detect	8
Maximum Detect	5500	Maximum Non-Detect	100
Variance Detected	3514339	Percent Non-Detects	57.14%

Mean Detected	1256	SD Detected	1875
Mean of Detected Logged Data	6.071	SD of Detected Logged Data	1.696

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.693	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.764	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.355	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.316	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	543.4	KM SD	1311
95% UTL95% Coverage	3652	95% KM UPL (t)	2858
90% KM Percentile (z)	2224	95% KM Percentile (z)	2700
99% KM Percentile (z)	3594	95% KM USL	3927

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	546.5	SD	1342
95% UTL95% Coverage	3729	95% UPL (t)	2916
90% Percentile (z)	2267	95% Percentile (z)	2755
99% Percentile (z)	3669	95% USL	4010

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.344	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.764	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.198	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.292	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.583	k star (bias corrected MLE)	0.463
Theta hat (MLE)	2154	Theta star (bias corrected MLE)	2714
nu hat (MLE)	10.49	nu star (bias corrected)	8.329
MLE Mean (bias corrected)	1256		
MLE Sd (bias corrected)	1846	95% Percentile of Chisquare (2kstar)	3.654

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	538.2
Maximum	5500	Median	0.01
SD	1346	CV	2.5
k hat (MLE)	0.125	k star (bias corrected MLE)	0.139
Theta hat (MLE)	4311	Theta star (bias corrected MLE)	3879
nu hat (MLE)	5.244	nu star (bias corrected)	5.828
MLE Mean (bias corrected)	538.2	MLE Sd (bias corrected)	1445
95% Percentile of Chisquare (2kstar)	1.549	90% Percentile	1576
95% Percentile	3005	99% Percentile	7220

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4323	5567	95% Approx. Gamma UPL	2253	2425
95% Gamma USL	5259	7158			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	543.4	SD (KM)	1311
Variance (KM)	1719546	SE of Mean (KM)	303.5
k hat (KM)	0.172	k star (KM)	0.179
nu hat (KM)	7.211	nu star (KM)	7.514
theta hat (KM)	3165	theta star (KM)	3037
80% gamma percentile (KM)	671.6	90% gamma percentile (KM)	1638
95% gamma percentile (KM)	2879	99% gamma percentile (KM)	6359

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3623	3934	95% Approx. Gamma UPL	2041	1999
95% KM Gamma Percentile	1795	1722	95% Gamma USL	4317	4852

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.982	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.113	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.252	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	540.3	Mean in Log Scale	3.282
SD in Original Scale	1345	SD in Log Scale	2.72
95% UTL95% Coverage	16841	95% BCA UTL95% Coverage	5500
95% Bootstrap (%) UTL95% Coverage	5500	95% UPL (t)	3242
90% Percentile (z)	869.5	95% Percentile (z)	2336
99% Percentile (z)	14915	95% USL	29768

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.831	95% KM UTL (Lognormal)95% Coverage	8760
KM SD of Logged Data	2.213	95% KM UPL (Lognormal)	2293
95% KM Percentile Lognormal (z)	1756	95% KM USL (Lognormal)	13923

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	546.5	Mean in Log Scale	3.943
SD in Original Scale	1342	SD in Log Scale	2.257
95% UTL95% Coverage	10865	95% UPL (t)	2770
90% Percentile (z)	929.7	95% Percentile (z)	2111
99% Percentile (z)	9824	95% USL	17428

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	5500
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5275
95% USL	5500	95% KM Chebyshev UPL	6394

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_awqc_concentration_fish)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	20		
Number of Detects	9	Number of Non-Detects	12
Number of Distinct Detects	9	Number of Distinct Non-Detects	11
Minimum Detect	21.7	Minimum Non-Detect	8
Maximum Detect	5500	Maximum Non-Detect	100
Variance Detected	3514339	Percent Non-Detects	57.14%
Mean Detected	1256	SD Detected	1875
Mean of Detected Logged Data	6.071	SD of Detected Logged Data	1.696

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.693	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.764	Data Not Normal at 1% Significance Level	

Lilliefors Test Statistic	0.355	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.316	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	543.4	KM SD	1311
95% UTL95% Coverage	3652	95% KM UPL (t)	2858
90% KM Percentile (z)	2224	95% KM Percentile (z)	2700
99% KM Percentile (z)	3594	95% KM USL	3927

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	546.5	SD	1342
95% UTL95% Coverage	3729	95% UPL (t)	2916
90% Percentile (z)	2267	95% Percentile (z)	2755
99% Percentile (z)	3669	95% USL	4010

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.344	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.764	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.198	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.292	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.583	k star (bias corrected MLE)	0.463
Theta hat (MLE)	2154	Theta star (bias corrected MLE)	2714
nu hat (MLE)	10.49	nu star (bias corrected)	8.329
MLE Mean (bias corrected)	1256		
MLE Sd (bias corrected)	1846	95% Percentile of Chisquare (2kstar)	3.654

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	538.2
Maximum	5500	Median	0.01
SD	1346	CV	2.5
k hat (MLE)	0.125	k star (bias corrected MLE)	0.139
Theta hat (MLE)	4311	Theta star (bias corrected MLE)	3879
nu hat (MLE)	5.244	nu star (bias corrected)	5.828
MLE Mean (bias corrected)	538.2	MLE Sd (bias corrected)	1445
95% Percentile of Chisquare (2kstar)	1.549	90% Percentile	1576
95% Percentile	3005	99% Percentile	7220

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4323	5567	95% Approx. Gamma UPL	2253	2425
95% Gamma USL	5259	7158			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	543.4	SD (KM)	1311
Variance (KM)	1719546	SE of Mean (KM)	303.5
k hat (KM)	0.172	k star (KM)	0.179
nu hat (KM)	7.211	nu star (KM)	7.514
theta hat (KM)	3165	theta star (KM)	3037
80% gamma percentile (KM)	671.6	90% gamma percentile (KM)	1638
95% gamma percentile (KM)	2879	99% gamma percentile (KM)	6359

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3623	3934	95% Approx. Gamma UPL	2041	1999
95% KM Gamma Percentile	1795	1722	95% Gamma USL	4317	4852

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.982	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.113	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.252	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	540.3	Mean in Log Scale	3.282
SD in Original Scale	1345	SD in Log Scale	2.72
95% UTL95% Coverage	16841	95% BCA UTL95% Coverage	5500
95% Bootstrap (%) UTL95% Coverage	5500	95% UPL (t)	3242
90% Percentile (z)	869.5	95% Percentile (z)	2336
99% Percentile (z)	14915	95% USL	29768

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.831	95% KM UTL (Lognormal)95% Coverage	8760
KM SD of Logged Data	2.213	95% KM UPL (Lognormal)	2293
95% KM Percentile Lognormal (z)	1756	95% KM USL (Lognormal)	13923

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	546.5	Mean in Log Scale	3.943
SD in Original Scale	1342	SD in Log Scale	2.257
95% UTL95% Coverage	10865	95% UPL (t)	2770
90% Percentile (z)	929.7	95% Percentile (z)	2111

99% Percentile (z)	9824	95% USL	17428

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	5500
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5275
95% USL	5500	95% KM Chebyshev UPL	6394

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	18
Minimum	0.008	First Quartile	0.02
Second Largest	3.2	Median	0.047
Maximum	5.5	Third Quartile	0.28
Mean	0.552	SD	1.334
Coefficient of Variation	2.417	Skewness	3.204
Mean of logged Data	-2.572	SD of logged Data	1.969

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.463	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.343	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	3.715	90% Percentile (z)	2.262
95% UPL (t)	2.907	95% Percentile (z)	2.747
95% USL	3.995	99% Percentile (z)	3.656

Gamma GOF Test

A-D Test Statistic	1.75	**Anderson-Darling Gamma GOF Test**	

5% A-D Critical Value	0.837	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.24	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.341	k star (bias corrected MLE)	0.324
Theta hat (MLE)	1.617	Theta star (bias corrected MLE)	1.701
nu hat (MLE)	14.34	nu star (bias corrected)	13.62
MLE Mean (bias corrected)	0.552	MLE Sd (bias corrected)	0.969

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.13	90% Percentile	1.611
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.097	95% Percentile	2.461
95% WH Approx. Gamma UTL with 95% Coverage	3.688	99% Percentile	4.649
95% HW Approx. Gamma UTL with 95% Coverage	3.968		
95% WH USL	4.364	95% HW USL	4.842

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.912	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.153	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	8.135	90% Percentile (z)	0.952
95% UPL (t)	2.469	95% Percentile (z)	1.948
95% USL	12.29	99% Percentile (z)	7.451

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	5.5
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.5	95% BCA Bootstrap UTL with 95% Coverage	5.5
95% UPL	5.27	90% Percentile	0.89
90% Chebyshev UPL	4.649	95% Percentile	3.2
95% Chebyshev UPL	6.505	99% Percentile	5.04
95% USL	5.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	18
Minimum	0.008	First Quartile	0.02
Second Largest	3.2	Median	0.047
Maximum	5.5	Third Quartile	0.28
Mean	0.552	SD	1.334
Coefficient of Variation	2.417	Skewness	3.204
Mean of logged Data	-2.572	SD of logged Data	1.969

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.463	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.343	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3.715	90% Percentile (z)	2.262
	95% UPL (t)	2.907	95% Percentile (z)	2.747
	95% USL	3.995	99% Percentile (z)	3.656

Gamma GOF Test

A-D Test Statistic	1.75	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.837	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.24	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.341	k star (bias corrected MLE)	0.324
Theta hat (MLE)	1.617	Theta star (bias corrected MLE)	1.701
nu hat (MLE)	14.34	nu star (bias corrected)	13.62
MLE Mean (bias corrected)	0.552	MLE Sd (bias corrected)	0.969

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.13	90% Percentile	1.611
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.097	95% Percentile	2.461
95% WH Approx. Gamma UTL with	95% Coverage	3.688	99% Percentile	4.649

95% HW Approx. Gamma UTL with	95% Coverage	3.968			
	95% WH USL	4.364		95% HW USL	4.842

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.912	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.153	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	8.135		90% Percentile (z)	0.952
	95% UPL (t)	2.469		95% Percentile (z)	1.948
	95% USL	12.29		99% Percentile (z)	7.451

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	21	95% UTL with	95% Coverage	5.5
	Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL		0.659
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	5.5	95% BCA Bootstrap UTL with	95% Coverage	5.5
	95% UPL	5.27		90% Percentile	0.89
	90% Chebyshev UPL	4.649		95% Percentile	3.2
	95% Chebyshev UPL	6.505		99% Percentile	5.04
	95% USL	5.5			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	18
Minimum	0.008	First Quartile	0.02
Second Largest	3.2	Median	0.047
Maximum	5.5	Third Quartile	0.28
Mean	0.552	SD	1.334
Coefficient of Variation	2.417	Skewness	3.204
Mean of logged Data	-2.572	SD of logged Data	1.969

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.463	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.343	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3.715	90% Percentile (z)	2.262
	95% UPL (t)	2.907	95% Percentile (z)	2.747
	95% USL	3.995	99% Percentile (z)	3.656

Gamma GOF Test

A-D Test Statistic	1.75	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.837	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.24	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.341	k star (bias corrected MLE)	0.324
Theta hat (MLE)	1.617	Theta star (bias corrected MLE)	1.701
nu hat (MLE)	14.34	nu star (bias corrected)	13.62
MLE Mean (bias corrected)	0.552	MLE Sd (bias corrected)	0.969

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.13	90% Percentile	1.611
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.097	95% Percentile	2.461
95% WH Approx. Gamma UTL with 95% Coverage	3.688	99% Percentile	4.649
95% HW Approx. Gamma UTL with 95% Coverage	3.968		
95% WH USL	4.364	95% HW USL	4.842

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.912	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.153	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	8.135	90% Percentile (z)	0.952
	95% UPL (t)	2.469	95% Percentile (z)	1.948
	95% USL	12.29	99% Percentile (z)	7.451

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	5.5
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.5	95% BCA Bootstrap UTL with 95% Coverage	5.5
95% UPL	5.27	90% Percentile	0.89
90% Chebyshev UPL	4.649	95% Percentile	3.2
95% Chebyshev UPL	6.505	99% Percentile	5.04
95% USL	5.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	19
Minimum	6.7000E-4	First Quartile	0.0017
Second Largest	0.27	Median	0.0039
Maximum	0.46	Third Quartile	0.024
Mean	0.0463	SD	0.112
Coefficient of Variation	2.415	Skewness	3.195
Mean of logged Data	-5.053	SD of logged Data	1.973

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.464	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.342	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.311	90% Percentile (z)	0.19
95% UPL (t)	0.244	95% Percentile (z)	0.23
95% USL	0.335	99% Percentile (z)	0.306

Gamma GOF Test

A-D Test Statistic	1.745	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.837	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.235	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.341	k star (bias corrected MLE)	0.324
Theta hat (MLE)	0.136	Theta star (bias corrected MLE)	0.143
nu hat (MLE)	14.32	nu star (bias corrected)	13.61
MLE Mean (bias corrected)	0.0463	MLE Sd (bias corrected)	0.0813

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.179	90% Percentile	0.135
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.176	95% Percentile	0.207
95% WH Approx. Gamma UTL with 95% Coverage	0.31	99% Percentile	0.39
95% HW Approx. Gamma UTL with 95% Coverage	0.333		
95% WH USL	0.366	95% HW USL	0.407

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.912	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.156	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.687	90% Percentile (z)	0.0801
95% UPL (t)	0.208	95% Percentile (z)	0.164
95% USL	1.039	99% Percentile (z)	0.629

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	0.46
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.46	95% BCA Bootstrap UTL with 95% Coverage	0.46
95% UPL	0.441	90% Percentile	0.074
90% Chebyshev UPL	0.39	95% Percentile	0.27
95% Chebyshev UPL	0.545	99% Percentile	0.422
95% USL	0.46		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers

and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_taxa-specific benchmark_hq_signif_bmi)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	20
Minimum	0.021	First Quartile	0.034
Second Largest	4.2	Median	0.085
Maximum	6.5	Third Quartile	0.39
Mean	0.734	SD	1.626
Coefficient of Variation	2.214	Skewness	2.954
Mean of logged Data	-1.985	SD of logged Data	1.781

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.5	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.389	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.588	90% Percentile (z)	2.817
	95% UPL (t)	3.604	95% Percentile (z)	3.408
	95% USL	4.929	99% Percentile (z)	4.516

Gamma GOF Test

A-D Test Statistic	1.801	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.827	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.225	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.394	k star (bias corrected MLE)	0.369
Theta hat (MLE)	1.865	Theta star (bias corrected MLE)	1.988
nu hat (MLE)	16.54	nu star (bias corrected)	15.51
MLE Mean (bias corrected)	0.734	MLE Sd (bias corrected)	1.208

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.831	90% Percentile	2.102
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.804	95% Percentile	3.135

95% WH Approx. Gamma UTL with	95% Coverage	4.795		99% Percentile	5.756
95% HW Approx. Gamma UTL with	95% Coverage	5.149			
	95% WH USL	5.641		95% HW USL	6.228

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.893	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.187	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	9.37		90% Percentile (z)	1.346
	95% UPL (t)	3.187		95% Percentile (z)	2.571
	95% USL	13.61		99% Percentile (z)	8.654

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	21	95% UTL with	95% Coverage	6.5
	Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL		0.659
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	6.5	95% BCA Bootstrap UTL with	95% Coverage	6.5
	95% UPL	6.27		90% Percentile	1.6
	90% Chebyshev UPL	5.726		95% Percentile	4.2
	95% Chebyshev UPL	7.987		99% Percentile	6.04
	95% USL	6.5			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_taxa-specific benchmark_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	0.011	First Quartile	0.0483
Second Largest	5.4	Median	0.096
Maximum	6.6	Third Quartile	0.783
Mean	1.057	SD	1.91
Coefficient of Variation	1.808	Skewness	2.043
Mean of logged Data	-1.613	SD of logged Data	1.904

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.609	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.368	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.544	90% Percentile (z)	3.505
	95% UPL (t)	4.418	95% Percentile (z)	4.199
	95% USL	6.029	99% Percentile (z)	5.501

Gamma GOF Test

A-D Test Statistic	1.725	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.827	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.275	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.395	k star (bias corrected MLE)	0.372
Theta hat (MLE)	2.674	Theta star (bias corrected MLE)	2.844
nu hat (MLE)	17.39	nu star (bias corrected)	16.35
MLE Mean (bias corrected)	1.057	MLE Sd (bias corrected)	1.734

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		4.252	90% Percentile	3.023
95% Hawkins Wixley (HW) Approx. Gamma UPL		4.362	95% Percentile	4.503
95% WH Approx. Gamma UTL with	95% Coverage	7.102	99% Percentile	8.256
95% HW Approx. Gamma UTL with	95% Coverage	7.932		
	95% WH USL	8.643	95% HW USL	10.01

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.907	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.213	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	17.46	90% Percentile (z)	2.287
	95% UPL (t)	5.68	95% Percentile (z)	4.567
	95% USL	28.31	99% Percentile (z)	16.72

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	6.6
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	6.6	95% BCA Bootstrap UTL with 95% Coverage	6.54
95% UPL	6.42	90% Percentile	3.97
90% Chebyshev UPL	6.917	95% Percentile	5.335
95% Chebyshev UPL	9.571	99% Percentile	6.348
95% USL	6.6		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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concDL (lead_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	20		
Number of Detects	5	Number of Non-Detects	16
Number of Distinct Detects	5	Number of Distinct Non-Detects	15
Minimum Detect	0.636	Minimum Non-Detect	0.039
Maximum Detect	5.59	Maximum Non-Detect	0.368
Variance Detected	4.341	Percent Non-Detects	76.19%
Mean Detected	1.891	SD Detected	2.084
Mean of Detected Logged Data	0.288	SD of Detected Logged Data	0.845

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.667	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.402	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.48	KM SD	1.204
95% UTL95% Coverage	3.334	95% KM UPL (t)	2.605

90% KM Percentile (z)	2.023	95% KM Percentile (z)	2.46
99% KM Percentile (z)	3.281	95% KM USL	3.586

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.509	SD	1.223
95% UTL95% Coverage	3.41	95% UPL (t)	2.669
90% Percentile (z)	2.077	95% Percentile (z)	2.522
99% Percentile (z)	3.355	95% USL	3.666

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.693	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.686	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.35	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.361	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.58	k star (bias corrected MLE)	0.765
Theta hat (MLE)	1.197	Theta star (bias corrected MLE)	2.472
nu hat (MLE)	15.8	nu star (bias corrected)	7.651
MLE Mean (bias corrected)	1.891		
MLE Sd (bias corrected)	2.162	95% Percentile of Chisquare (2kstar)	5.044

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

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For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.458
Maximum	5.59	Median	0.01
SD	1.242	CV	2.712
k hat (MLE)	0.265	k star (bias corrected MLE)	0.259
Theta hat (MLE)	1.73	Theta star (bias corrected MLE)	1.771
nu hat (MLE)	11.12	nu star (bias corrected)	10.86
MLE Mean (bias corrected)	0.458	MLE Sd (bias corrected)	0.9
95% Percentile of Chisquare (2kstar)	2.478	90% Percentile	1.371
95% Percentile	2.194	99% Percentile	4.375

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.16	3.346	95% Approx. Gamma UPL	1.745	1.661
95% Gamma USL	3.787	4.154			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.48	SD (KM)	1.204
Variance (KM)	1.449	SE of Mean (KM)	0.294
k hat (KM)	0.159	k star (KM)	0.168
nu hat (KM)	6.677	nu star (KM)	7.057
theta hat (KM)	3.019	theta star (KM)	2.857
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95% gamma percentile (KM)	2.58	99% gamma percentile (KM)	5.812

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.878	2.929	95% Approx. Gamma UPL	1.704	1.614
95% KM Gamma Percentile	1.517	1.417	95% Gamma USL	3.383	3.531

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.836	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Detected Data appear Lognormal at 10% Significance Level
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Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.483	Mean in Log Scale	-2.357
SD in Original Scale	1.232	SD in Log Scale	1.581
95% UTL95% Coverage	4.017	95% BCA UTL95% Coverage	5.59
95% Bootstrap (%) UTL95% Coverage	5.59	95% UPL (t)	1.542
90% Percentile (z)	0.718	95% Percentile (z)	1.275
99% Percentile (z)	3.743	95% USL	5.593

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.403	95% KM UTL (Lognormal)95% Coverage	3.56
KM SD of Logged Data	1.549	95% KM UPL (Lognormal)	1.393
95% KM Percentile Lognormal (z)	1.156	95% KM USL (Lognormal)	4.924

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.509	Mean in Log Scale	-2.042
SD in Original Scale	1.223	SD in Log Scale	1.509
95% UTL95% Coverage	4.639	95% UPL (t)	1.86
90% Percentile (z)	0.897	95% Percentile (z)	1.551
99% Percentile (z)	4.337	95% USL	6.362

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	5.59
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5.166
95% USL	5.59	95% KM Chebyshev UPL	5.851

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concDL (lead_ug/l_awqc_concentration_bmi)

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90% Percentile (z)	2.077	95% Percentile (z)	2.522
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Table C3-5
ProUCL Output for Porewater BTVs and BTV HQs, Approach B
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

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Mean in Original Scale	0.509	Mean in Log Scale	-2.042
SD in Original Scale	1.223	SD in Log Scale	1.509
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concDL (lead_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	19
Minimum	0.022	First Quartile	0.04
Second Largest	0.96	Median	0.11
Maximum	1.7	Third Quartile	0.23

Mean	0.278	SD	0.416
Coefficient of Variation	1.5	Skewness	2.426
Mean of logged Data	-2.126	SD of logged Data	1.296

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.653	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.307	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	1.265	90% Percentile (z)	0.811
	95% UPL (t)	1.013	95% Percentile (z)	0.963
	95% USL	1.352	99% Percentile (z)	1.246

Gamma GOF Test

A-D Test Statistic	1.055	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.786	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.187	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.197	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.714	k star (bias corrected MLE)	0.644
Theta hat (MLE)	0.389	Theta star (bias corrected MLE)	0.431
nu hat (MLE)	29.98	nu star (bias corrected)	27.03
MLE Mean (bias corrected)	0.278	MLE Sd (bias corrected)	0.346

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.984	90% Percentile	0.711
95% Hawkins Wixley (HW) Approx. Gamma UPL		1.005	95% Percentile	0.974
95% WH Approx. Gamma UTL with	95% Coverage	1.522	99% Percentile	1.607
95% HW Approx. Gamma UTL with	95% Coverage	1.643		
	95% WH USL	1.745	95% HW USL	1.923

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.131	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	2.58	90% Percentile (z)		0.628
	95% UPL (t)	1.176	95% Percentile (z)		1.006
	95% USL	3.385	99% Percentile (z)		2.435

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		21	95% UTL with	95% Coverage	1.7
Approx, f used to compute achieved CC		1.105	Approximate Actual Confidence Coefficient achieved by UTL		0.659
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	1.7	95% BCA Bootstrap UTL with	95% Coverage	1.7
	95% UPL	1.626		90% Percentile	0.71
	90% Chebyshev UPL	1.556		95% Percentile	0.96
	95% Chebyshev UPL	2.136		99% Percentile	1.552
	95% USL	1.7			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	19
Minimum	0.022	First Quartile	0.04
Second Largest	0.96	Median	0.11
Maximum	1.7	Third Quartile	0.23
Mean	0.278	SD	0.416
Coefficient of Variation	1.5	Skewness	2.426
Mean of logged Data	-2.126	SD of logged Data	1.296

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.653	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.307	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	1.265		90% Percentile (z)	0.811
	95% UPL (t)	1.013		95% Percentile (z)	0.963
	95% USL	1.352		99% Percentile (z)	1.246

Gamma GOF Test

A-D Test Statistic	1.055	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.786	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.187	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.197	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.714	k star (bias corrected MLE)	0.644
Theta hat (MLE)	0.389	Theta star (bias corrected MLE)	0.431
nu hat (MLE)	29.98	nu star (bias corrected)	27.03
MLE Mean (bias corrected)	0.278	MLE Sd (bias corrected)	0.346

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.984		90% Percentile	0.711
95% Hawkins Wixley (HW) Approx. Gamma UPL		1.005		95% Percentile	0.974
95% WH Approx. Gamma UTL with	95% Coverage	1.522		99% Percentile	1.607
95% HW Approx. Gamma UTL with	95% Coverage	1.643			
	95% WH USL	1.745		95% HW USL	1.923

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.131	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	2.58		90% Percentile (z)	0.628
	95% UPL (t)	1.176		95% Percentile (z)	1.006
	95% USL	3.385		99% Percentile (z)	2.435

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		21		95% UTL with 95% Coverage	1.7
Approx, f used to compute achieved CC		1.105		Approximate Actual Confidence Coefficient achieved by UTL	0.659
				Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	1.7		95% BCA Bootstrap UTL with 95% Coverage	1.7
	95% UPL	1.626		90% Percentile	0.71
	90% Chebyshev UPL	1.556		95% Percentile	0.96

95% Chebyshev UPL	2.136	99% Percentile	1.552
95% USL	1.7		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	19
Minimum	0.022	First Quartile	0.04
Second Largest	0.96	Median	0.11
Maximum	1.7	Third Quartile	0.23
Mean	0.278	SD	0.416
Coefficient of Variation	1.5	Skewness	2.426
Mean of logged Data	-2.126	SD of logged Data	1.296

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.653	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.307	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	1.265	90% Percentile (z)	0.811
	95% UPL (t)	1.013	95% Percentile (z)	0.963
	95% USL	1.352	99% Percentile (z)	1.246

Gamma GOF Test

A-D Test Statistic	1.055	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.786	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.187	**Kolmogorov-Smirnov Gamma GOF Test**
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Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.714	k star (bias corrected MLE)	0.644
Theta hat (MLE)	0.389	Theta star (bias corrected MLE)	0.431
nu hat (MLE)	29.98	nu star (bias corrected)	27.03

MLE Mean (bias corrected)	0.278	MLE Sd (bias corrected)	0.346

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.984	90% Percentile	0.711
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.005	95% Percentile	0.974
95% WH Approx. Gamma UTL with 95% Coverage	1.522	99% Percentile	1.607
95% HW Approx. Gamma UTL with 95% Coverage	1.643		
95% WH USL	1.745	95% HW USL	1.923

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.131	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	2.58	90% Percentile (z)	0.628
95% UPL (t)	1.176	95% Percentile (z)	1.006
95% USL	3.385	99% Percentile (z)	2.435

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	1.7
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1.7	95% BCA Bootstrap UTL with 95% Coverage	1.7
95% UPL	1.626	90% Percentile	0.71
90% Chebyshev UPL	1.556	95% Percentile	0.96
95% Chebyshev UPL	2.136	99% Percentile	1.552
95% USL	1.7		

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and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	19
Minimum	6.2000E-4	First Quartile	0.0014
Second Largest	0.021	Median	0.0025

Maximum	0.089	Third Quartile	0.0058
Mean	0.009	SD	0.0192
Coefficient of Variation	2.128	Skewness	3.995
Mean of logged Data	-5.663	SD of logged Data	1.252

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.441	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.331	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0544	90% Percentile (z)	0.0336
	95% UPL (t)	0.0428	95% Percentile (z)	0.0405
	95% USL	0.0585	99% Percentile (z)	0.0536

Gamma GOF Test

A-D Test Statistic	1.453	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.793	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.221	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.198	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.642	k star (bias corrected MLE)	0.582
Theta hat (MLE)	0.014	Theta star (bias corrected MLE)	0.0155
nu hat (MLE)	26.96	nu star (bias corrected)	24.44
MLE Mean (bias corrected)	0.009	MLE Sd (bias corrected)	0.0118

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0311	90% Percentile	0.0236
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0305	95% Percentile	0.0328
95% WH Approx. Gamma UTL with	95% Coverage	0.0489	99% Percentile	0.055
95% HW Approx. Gamma UTL with	95% Coverage	0.0504		
	95% WH USL	0.0563	95% HW USL	0.0591

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.935	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0675	90% Percentile (z)	0.0173
	95% UPL (t)	0.0316	95% Percentile (z)	0.0272
	95% USL	0.0877	99% Percentile (z)	0.0638

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		21	95% UTL with 95% Coverage	0.089
Approx, f used to compute achieved CC		1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.089	95% BCA Bootstrap UTL with 95% Coverage	0.089
	95% UPL	0.0822	90% Percentile	0.016
	90% Chebyshev UPL	0.0679	95% Percentile	0.021
	95% Chebyshev UPL	0.0945	99% Percentile	0.0754
	95% USL	0.089		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_taxa-specific benchmark_hq_signif_fish)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	20
Minimum	6.1000E-4	First Quartile	0.0011
Second Largest	0.027	Median	0.003
Maximum	0.047	Third Quartile	0.0064
Mean	0.00764	SD	0.0115
Coefficient of Variation	1.504	Skewness	2.456
Mean of logged Data	-5.712	SD of logged Data	1.29

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.651	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.305	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0349		90% Percentile (z)	0.0224
	95% UPL (t)	0.0279		95% Percentile (z)	0.0265
	95% USL	0.0373		99% Percentile (z)	0.0344

Gamma GOF Test

A-D Test Statistic	1.027	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.786	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.18	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.197	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.719	k star (bias corrected MLE)	0.648
Theta hat (MLE)	0.0106	Theta star (bias corrected MLE)	0.0118
nu hat (MLE)	30.19	nu star (bias corrected)	27.21
MLE Mean (bias corrected)	0.00764	MLE Sd (bias corrected)	0.00949

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.027	90% Percentile	0.0195
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0276	95% Percentile	0.0267
95% WH Approx. Gamma UTL with 95% Coverage	0.0417	99% Percentile	0.0441
95% HW Approx. Gamma UTL with 95% Coverage	0.045		
95% WH USL	0.0478	95% HW USL	0.0526

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.938	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.126	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0704		90% Percentile (z)	0.0173
	95% UPL (t)	0.0322		95% Percentile (z)	0.0276
	95% USL	0.0922		99% Percentile (z)	0.0664

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		21	95% UTL with	95% Coverage	0.047
Approx, f used to compute achieved CC		1.105	Approximate Actual Confidence Coefficient achieved by UTL		0.659
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.047	95% BCA Bootstrap UTL with	95% Coverage	0.047
	95% UPL	0.045		90% Percentile	0.019

90% Chebyshev UPL	0.0429	95% Percentile	0.027
95% Chebyshev UPL	0.0589	99% Percentile	0.043
95% USL	0.047		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	19
Minimum	0.0021	First Quartile	0.0042
Second Largest	0.1	Median	0.01
Maximum	0.16	Third Quartile	0.026
Mean	0.0284	SD	0.0409
Coefficient of Variation	1.437	Skewness	2.149
Mean of logged Data	-4.404	SD of logged Data	1.315

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.682	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.296	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.125	90% Percentile (z)	0.0808
	95% UPL (t)	0.101	95% Percentile (z)	0.0956
	95% USL	0.134	99% Percentile (z)	0.123

Gamma GOF Test

A-D Test Statistic	1.013	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.786	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.167	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.197	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.714	k star (bias corrected MLE)	0.644
Theta hat (MLE)	0.0398	Theta star (bias corrected MLE)	0.0442

nu hat (MLE)	29.98	nu star (bias corrected)	27.03
MLE Mean (bias corrected)	0.0284	MLE Sd (bias corrected)	0.0354

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.101	90% Percentile	0.0728
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.104	95% Percentile	0.0998
95% WH Approx. Gamma UTL with 95% Coverage	0.157	99% Percentile	0.165
95% HW Approx. Gamma UTL with 95% Coverage	0.171		
95% WH USL	0.18	95% HW USL	0.2

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.935	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.125	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.276	90% Percentile (z)	0.0659
95% UPL (t)	0.124	95% Percentile (z)	0.106
95% USL	0.363	99% Percentile (z)	0.26

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	0.16
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.16	95% BCA Bootstrap UTL with 95% Coverage	0.16
95% UPL	0.154	90% Percentile	0.076
90% Chebyshev UPL	0.154	95% Percentile	0.1
95% Chebyshev UPL	0.211	99% Percentile	0.148
95% USL	0.16		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (magnesium_ug/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	22
Minimum	2480	First Quartile	3323

Second Largest	7420	Median	4070
Maximum	8610	Third Quartile	5805
Mean	4616	SD	1688
Coefficient of Variation	0.366	Skewness	0.9
Mean of logged Data	8.378	SD of logged Data	0.346

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.907	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	8581	90% Percentile (z)	6779
	95% UPL (t)	7586	95% Percentile (z)	7392
	95% USL	9010	99% Percentile (z)	8543

Gamma GOF Test

A-D Test Statistic	0.52	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.159	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.185	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	8.623	k star (bias corrected MLE)	7.477
Theta hat (MLE)	535.3	Theta star (bias corrected MLE)	617.3
nu hat (MLE)	379.4	nu star (bias corrected)	329
MLE Mean (bias corrected)	4616	MLE Sd (bias corrected)	1688

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		7806	90% Percentile 6868
95% Hawkins Wixley (HW) Approx. Gamma UPL		7849	95% Percentile 7697
95% WH Approx. Gamma UTL with	95% Coverage	9233	99% Percentile 9418
95% HW Approx. Gamma UTL with	95% Coverage	9356	
	95% WH USL	9897	95% HW USL 10068

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.957	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.137	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	9819	90% Percentile (z)		6783
	95% UPL (t)	8004	95% Percentile (z)		7693
	95% USL	10721	99% Percentile (z)		9742

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	8610
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	8610	95% BCA Bootstrap UTL with	95% Coverage	8610
	95% UPL	8432		90% Percentile	7162
	90% Chebyshev UPL	9794		95% Percentile	7412
	95% Chebyshev UPL	12139		99% Percentile	8360
	95% USL	8610			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	18	Number of Non-Detects	4
Number of Distinct Detects	18	Number of Distinct Non-Detects	4
Minimum Detect	2.92	Minimum Non-Detect	0.79
Maximum Detect	859	Maximum Non-Detect	1.93
Variance Detected	82003	Percent Non-Detects	18.18%
Mean Detected	275.3	SD Detected	286.4
Mean of Detected Logged Data	4.479	SD of Detected Logged Data	2.025

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.861	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.194	**Lilliefors GOF Test**	

1% Lilliefors Critical Value	0.235	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	225.4	KM SD	273.1
95% UTL95% Coverage	866.9	95% KM UPL (t)	705.9
90% KM Percentile (z)	575.4	95% KM Percentile (z)	674.6
99% KM Percentile (z)	860.7	95% KM USL	936.2

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	225.4	SD	279.5
95% UTL95% Coverage	882	95% UPL (t)	717.2
90% Percentile (z)	583.6	95% Percentile (z)	685.2
99% Percentile (z)	875.7	95% USL	953

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.585	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.796	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.145	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.549	k star (bias corrected MLE)	0.495
Theta hat (MLE)	501.1	Theta star (bias corrected MLE)	556.3
nu hat (MLE)	19.78	nu star (bias corrected)	17.82
MLE Mean (bias corrected)	275.3		
MLE Sd (bias corrected)	391.4	95% Percentile of Chisquare (2kstar)	3.816

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	225.3
Maximum	859	Median	66.2
SD	279.6	CV	1.241
k hat (MLE)	0.271	k star (bias corrected MLE)	0.264
Theta hat (MLE)	832.2	Theta star (bias corrected MLE)	853
nu hat (MLE)	11.91	nu star (bias corrected)	11.62
MLE Mean (bias corrected)	225.3	MLE Sd (bias corrected)	438.4
95% Percentile of Chisquare (2kstar)	2.515	90% Percentile	673.2
95% Percentile	1073	99% Percentile	2127

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1777	2494	95% Approx. Gamma UPL	1055	1303
95% Gamma USL	2169	3202			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	225.4	SD (KM)	273.1
Variance (KM)	74578	SE of Mean (KM)	59.91
k hat (KM)	0.681	k star (KM)	0.619
nu hat (KM)	29.98	nu star (KM)	27.22
theta hat (KM)	330.9	theta star (KM)	364.3
80% gamma percentile (KM)	371.5	90% gamma percentile (KM)	582.2
95% gamma percentile (KM)	802.2	99% gamma percentile (KM)	1333

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1595	2040	95% Approx. Gamma UPL	968	1114
95% KM Gamma Percentile	869.3	979.5	95% Gamma USL	1933	2579

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.871	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.21	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	225.5	Mean in Log Scale	3.688
SD in Original Scale	279.5	SD in Log Scale	2.504
95% UTL95% Coverage	14306	95% BCA UTL95% Coverage	859
95% Bootstrap (%) UTL95% Coverage	859	95% UPL (t)	3270
90% Percentile (z)	988.4	95% Percentile (z)	2454
99% Percentile (z)	13518	95% USL	27006

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.621	95% KM UTL (Lognormal)95% Coverage	14740
KM SD of Logged Data	2.544	95% KM UPL (Lognormal)	3288
95% KM Percentile Lognormal (z)	2457	95% KM USL (Lognormal)	28115

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	225.4	Mean in Log Scale	3.568
SD in Original Scale	279.5	SD in Log Scale	2.693
95% UTL95% Coverage	19795	95% UPL (t)	4047
90% Percentile (z)	1118	95% Percentile (z)	2972
99% Percentile (z)	18624	95% USL	39204

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	859
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	837.6
95% USL	859	95% KM Chebyshev UPL	1443

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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concDL (manganese_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	18	Number of Non-Detects	4
Number of Distinct Detects	18	Number of Distinct Non-Detects	4
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1% Shapiro Wilk Critical Value	0.858	Detected Data appear Normal at 1% Significance Level	
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1% Lilliefors Critical Value	0.235	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

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KM Mean	225.4	KM SD	273.1
95% UTL95% Coverage	866.9	95% KM UPL (t)	705.9
90% KM Percentile (z)	575.4	95% KM Percentile (z)	674.6
99% KM Percentile (z)	860.7	95% KM USL	936.2

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	225.4	SD	279.5
95% UTL95% Coverage	882	95% UPL (t)	717.2
90% Percentile (z)	583.6	95% Percentile (z)	685.2
99% Percentile (z)	875.7	95% USL	953

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A-D Test Statistic	0.585	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.796	Detected data appear Gamma Distributed at 5% Significance Level
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k hat (MLE)	0.549	k star (bias corrected MLE)	0.495
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nu hat (MLE)	19.78	nu star (bias corrected)	17.82
MLE Mean (bias corrected)	275.3		
MLE Sd (bias corrected)	391.4	95% Percentile of Chisquare (2kstar)	3.816

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

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Minimum	0.01	Mean	225.3
Maximum	859	Median	66.2
SD	279.6	CV	1.241
k hat (MLE)	0.271	k star (bias corrected MLE)	0.264
Theta hat (MLE)	832.2	Theta star (bias corrected MLE)	853
nu hat (MLE)	11.91	nu star (bias corrected)	11.62
MLE Mean (bias corrected)	225.3	MLE Sd (bias corrected)	438.4
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95% Percentile	1073	99% Percentile	2127

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1777	2494	95% Approx. Gamma UPL	1055	1303
95% Gamma USL	2169	3202			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	225.4	SD (KM)	273.1
Variance (KM)	74578	SE of Mean (KM)	59.91
k hat (KM)	0.681	k star (KM)	0.619

nu hat (KM)	29.98	nu star (KM)	27.22
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10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	225.5	Mean in Log Scale	3.688
SD in Original Scale	279.5	SD in Log Scale	2.504
95% UTL95% Coverage	14306	95% BCA UTL95% Coverage	859
95% Bootstrap (%) UTL95% Coverage	859	95% UPL (t)	3270
90% Percentile (z)	988.4	95% Percentile (z)	2454
99% Percentile (z)	13518	95% USL	27006

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KM Mean of Logged Data	3.621	95% KM UTL (Lognormal)95% Coverage	14740
KM SD of Logged Data	2.544	95% KM UPL (Lognormal)	3288
95% KM Percentile Lognormal (z)	2457	95% KM USL (Lognormal)	28115

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	225.4	Mean in Log Scale	3.568
SD in Original Scale	279.5	SD in Log Scale	2.693
95% UTL95% Coverage	19795	95% UPL (t)	4047
90% Percentile (z)	1118	95% Percentile (z)	2972
99% Percentile (z)	18624	95% USL	39204

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Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
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concDL (manganese_ug/l_awqc_concentration_fish)

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Mean	225.4	SD	279.5
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90% Percentile (z)	583.6	95% Percentile (z)	685.2
99% Percentile (z)	875.7	95% USL	953

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Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.549	k star (bias corrected MLE)	0.495
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Maximum	859	Median	66.2
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k hat (MLE)	0.271	k star (bias corrected MLE)	0.264
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MLE Mean (bias corrected)	225.3	MLE Sd (bias corrected)	438.4
95% Percentile of Chisquare (2kstar)	2.515	90% Percentile	673.2
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Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
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Mean (KM)	225.4	SD (KM)	273.1
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80% gamma percentile (KM)	371.5	90% gamma percentile (KM)	582.2
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The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1595	2040	95% Approx. Gamma UPL	968	1114

95% KM Gamma Percentile	869.3	979.5	95% Gamma USL	1933	2579

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.871	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.21	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	225.5	Mean in Log Scale	3.688
SD in Original Scale	279.5	SD in Log Scale	2.504
95% UTL95% Coverage	14306	95% BCA UTL95% Coverage	859
95% Bootstrap (%) UTL95% Coverage	859	95% UPL (t)	3270
90% Percentile (z)	988.4	95% Percentile (z)	2454
99% Percentile (z)	13518	95% USL	27006

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.621	95% KM UTL (Lognormal)95% Coverage	14740
KM SD of Logged Data	2.544	95% KM UPL (Lognormal)	3288
95% KM Percentile Lognormal (z)	2457	95% KM USL (Lognormal)	28115

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	225.4	Mean in Log Scale	3.568
SD in Original Scale	279.5	SD in Log Scale	2.693
95% UTL95% Coverage	19795	95% UPL (t)	4047
90% Percentile (z)	1118	95% Percentile (z)	2972
99% Percentile (z)	18624	95% USL	39204

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	859
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	837.6
95% USL	859	95% KM Chebyshev UPL	1443

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	4.9000E-4	First Quartile	0.00273
Second Largest	0.47	Median	0.0525
Maximum	0.54	Third Quartile	0.255
Mean	0.139	SD	0.17
Coefficient of Variation	1.222	Skewness	1.082
Mean of logged Data	-3.638	SD of logged Data	2.437

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.811	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.537	90% Percentile (z)	0.356
	95% UPL (t)	0.437	95% Percentile (z)	0.418
	95% USL	0.58	99% Percentile (z)	0.533

Gamma GOF Test

A-D Test Statistic	0.859	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.827	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.181	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.396	k star (bias corrected MLE)	0.373
Theta hat (MLE)	0.35	Theta star (bias corrected MLE)	0.373
nu hat (MLE)	17.44	nu star (bias corrected)	16.39
MLE Mean (bias corrected)	0.139	MLE Sd (bias corrected)	0.227

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.61	90% Percentile	0.397
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.702	95% Percentile	0.591
95% WH Approx. Gamma UTL with	95% Coverage	1.004	99% Percentile	1.083
95% HW Approx. Gamma UTL with	95% Coverage	1.279		
	95% WH USL	1.215	95% HW USL	1.614

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.18	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	8.061	90% Percentile (z)	0.598
95% UPL (t)	1.916	95% Percentile (z)	1.449
95% USL	14.96	99% Percentile (z)	7.628

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.54
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.54	95% BCA Bootstrap UTL with 95% Coverage	0.54
95% UPL	0.53	90% Percentile	0.382
90% Chebyshev UPL	0.659	95% Percentile	0.466
95% Chebyshev UPL	0.895	99% Percentile	0.525
95% USL	0.54		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	4.9000E-4	First Quartile	0.00273
Second Largest	0.47	Median	0.0525
Maximum	0.54	Third Quartile	0.255
Mean	0.139	SD	0.17
Coefficient of Variation	1.222	Skewness	1.082
Mean of logged Data	-3.638	SD of logged Data	2.437

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.811	**Shapiro Wilk GOF Test**

1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.537	90% Percentile (z)	0.356
	95% UPL (t)	0.437	95% Percentile (z)	0.418
	95% USL	0.58	99% Percentile (z)	0.533

Gamma GOF Test

A-D Test Statistic	0.859	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.827	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.181	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.396	k star (bias corrected MLE)	0.373
Theta hat (MLE)	0.35	Theta star (bias corrected MLE)	0.373
nu hat (MLE)	17.44	nu star (bias corrected)	16.39
MLE Mean (bias corrected)	0.139	MLE Sd (bias corrected)	0.227

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.61	90% Percentile	0.397
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.702	95% Percentile	0.591
95% WH Approx. Gamma UTL with 95% Coverage	1.004	99% Percentile	1.083
95% HW Approx. Gamma UTL with 95% Coverage	1.279		
95% WH USL	1.215	95% HW USL	1.614

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.18	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	8.061	90% Percentile (z)	0.598
	95% UPL (t)	1.916	95% Percentile (z)	1.449
	95% USL	14.96	99% Percentile (z)	7.628

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.54
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.54	95% BCA Bootstrap UTL with 95% Coverage	0.54
95% UPL	0.53	90% Percentile	0.382
90% Chebyshev UPL	0.659	95% Percentile	0.466
95% Chebyshev UPL	0.895	99% Percentile	0.525
95% USL	0.54		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	4.9000E-4	First Quartile	0.00273
Second Largest	0.47	Median	0.0525
Maximum	0.54	Third Quartile	0.255
Mean	0.139	SD	0.17
Coefficient of Variation	1.222	Skewness	1.082
Mean of logged Data	-3.638	SD of logged Data	2.437

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.811	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.537	90% Percentile (z)	0.356
95% UPL (t)	0.437	95% Percentile (z)	0.418
95% USL	0.58	99% Percentile (z)	0.533

Gamma GOF Test

A-D Test Statistic	0.859	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.827	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.181	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.199	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.396	k star (bias corrected MLE)	0.373
Theta hat (MLE)	0.35	Theta star (bias corrected MLE)	0.373
nu hat (MLE)	17.44	nu star (bias corrected)	16.39
MLE Mean (bias corrected)	0.139	MLE Sd (bias corrected)	0.227

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.61	90% Percentile	0.397
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.702	95% Percentile	0.591
95% WH Approx. Gamma UTL with 95% Coverage	1.004	99% Percentile	1.083
95% HW Approx. Gamma UTL with 95% Coverage	1.279		
95% WH USL	1.215	95% HW USL	1.614

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.18	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	8.061	90% Percentile (z)	0.598
95% UPL (t)	1.916	95% Percentile (z)	1.449
95% USL	14.96	99% Percentile (z)	7.628

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	0.54
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.54	95% BCA Bootstrap UTL with 95% Coverage	0.537
95% UPL	0.53	90% Percentile	0.382
90% Chebyshev UPL	0.659	95% Percentile	0.466
95% Chebyshev UPL	0.895	99% Percentile	0.525
95% USL	0.54		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	4.9000E-5	First Quartile	2.4000E-4
Second Largest	0.045	Median	0.0041
Maximum	0.054	Third Quartile	0.0233
Mean	0.0141	SD	0.0175
Coefficient of Variation	1.245	Skewness	1.078
Mean of logged Data	-5.991	SD of logged Data	2.497

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.797	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0552	90% Percentile (z)	0.0365
95% UPL (t)	0.0449	95% Percentile (z)	0.0429
95% USL	0.0596	99% Percentile (z)	0.0548

Gamma GOF Test

A-D Test Statistic	0.79	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.829	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.175	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.384	k star (bias corrected MLE)	0.362
Theta hat (MLE)	0.0367	Theta star (bias corrected MLE)	0.0389
nu hat (MLE)	16.88	nu star (bias corrected)	15.91
MLE Mean (bias corrected)	0.0141	MLE Sd (bias corrected)	0.0234

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0622	90% Percentile	0.0404
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0715	95% Percentile	0.0605
95% WH Approx. Gamma UTL with 95% Coverage	0.103	99% Percentile	0.112
95% HW Approx. Gamma UTL with 95% Coverage	0.131		
95% WH USL	0.124	95% HW USL	0.166

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.19	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.883	90% Percentile (z)	0.0614
	95% UPL (t)	0.202	95% Percentile (z)	0.152
	95% USL	1.664	99% Percentile (z)	0.834

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with 95% Coverage	0.054
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.054	95% BCA Bootstrap UTL with 95% Coverage	0.054
	95% UPL	0.0527	90% Percentile	0.0434
	90% Chebyshev UPL	0.0678	95% Percentile	0.045
	95% Chebyshev UPL	0.0921	99% Percentile	0.0521
	95% USL	0.054		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (ph_su_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	21
Minimum	6.65	First Quartile	6.873
Second Largest	7.95	Median	7.125
Maximum	7.98	Third Quartile	7.315
Mean	7.155	SD	0.382
Coefficient of Variation	0.0534	Skewness	0.774
Mean of logged Data	1.966	SD of logged Data	0.0526

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.114	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	8.053	90% Percentile (z)	7.645
	95% UPL (t)	7.827	95% Percentile (z)	7.784
	95% USL	8.15	99% Percentile (z)	8.044

Gamma GOF Test

A-D Test Statistic	0.407	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.105	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.185	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	374.9	k star (bias corrected MLE)	323.8
Theta hat (MLE)	0.0191	Theta star (bias corrected MLE)	0.0221
nu hat (MLE)	16497	nu star (bias corrected)	14249
MLE Mean (bias corrected)	7.155	MLE Sd (bias corrected)	0.398

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		7.834	90% Percentile	7.669
95% Hawkins Wixley (HW) Approx. Gamma UPL		7.835	95% Percentile	7.821
95% WH Approx. Gamma UTL with	95% Coverage	8.073	99% Percentile	8.112
95% HW Approx. Gamma UTL with	95% Coverage	8.076		
	95% WH USL	8.178	95% HW USL	8.182

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.941	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.103	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	8.085	90% Percentile (z)	7.643
	95% UPL (t)	7.838	95% Percentile (z)	7.791
	95% USL	8.193	99% Percentile (z)	8.075

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	22	95% UTL with 95% Coverage	7.98
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7.98	95% BCA Bootstrap UTL with 95% Coverage	7.98
95% UPL	7.976	90% Percentile	7.691
90% Chebyshev UPL	8.328	95% Percentile	7.938
95% Chebyshev UPL	8.859	99% Percentile	7.974
95% USL	7.98		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (potassium_ug/l_na_concentration_na)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	21
Minimum	700	First Quartile	810
Second Largest	3380	Median	1340
Maximum	4240	Third Quartile	2020
Mean	1720	SD	990
Coefficient of Variation	0.576	Skewness	1.006
Mean of logged Data	7.298	SD of logged Data	0.564

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.889	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.873	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.173	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.219	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	4067	90% Percentile (z)	2988
95% UPL (t)	3467	95% Percentile (z)	3348
95% USL	4274	99% Percentile (z)	4023

Gamma GOF Test

A-D Test Statistic	0.533	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.748	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.14	**Kolmogorov-Smirnov Gamma GOF Test**	

5% K-S Critical Value	0.191	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.45	k star (bias corrected MLE)	2.989
Theta hat (MLE)	498.5	Theta star (bias corrected MLE)	575.4
nu hat (MLE)	144.9	nu star (bias corrected)	125.5
MLE Mean (bias corrected)	1720	MLE Sd (bias corrected)	994.7

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3709	90% Percentile	3053
95% Hawkins Wixley (HW) Approx. Gamma UPL	3766	95% Percentile	3613
95% WH Approx. Gamma UTL with 95% Coverage	4755	99% Percentile	4825
95% HW Approx. Gamma UTL with 95% Coverage	4917		
95% WH USL	5158	95% HW USL	5371

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.935	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.142	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	5632	90% Percentile (z)	3045
95% UPL (t)	4001	95% Percentile (z)	3738
95% USL	6339	99% Percentile (z)	5492

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	4240
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	4240	95% BCA Bootstrap UTL with 95% Coverage	4240
95% UPL	4154	90% Percentile	2880
90% Chebyshev UPL	4759	95% Percentile	3380
95% Chebyshev UPL	6136	99% Percentile	4068
95% USL	4240		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sodium_ug/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	20	Number of Non-Detects	2
Number of Distinct Detects	19	Number of Distinct Non-Detects	2
Minimum Detect	1070	Minimum Non-Detect	940
Maximum Detect	5190	Maximum Non-Detect	1130
Variance Detected	1302142	Percent Non-Detects	9.091%
Mean Detected	2560	SD Detected	1141
Mean of Detected Logged Data	7.759	SD of Detected Logged Data	0.431

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.903	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.868	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.207	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.223	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2415	KM SD	1155
95% UTL95% Coverage	5127	95% KM UPL (t)	4447
90% KM Percentile (z)	3895	95% KM Percentile (z)	4314
99% KM Percentile (z)	5101	95% KM USL	5420

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2374	SD	1241
95% UTL95% Coverage	5288	95% UPL (t)	4557
90% Percentile (z)	3964	95% Percentile (z)	4415
99% Percentile (z)	5260	95% USL	5603

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.453	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.165	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.776	k star (bias corrected MLE)	4.943

Theta hat (MLE)	443.1	Theta star (bias corrected MLE)	517.8
nu hat (MLE)	231	nu star (bias corrected)	197.7
MLE Mean (bias corrected)	2560		
MLE Sd (bias corrected)	1151	95% Percentile of Chisquare (2kstar)	18.15

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	425.4	Mean	2377
Maximum	5190	Median	2100
SD	1236	CV	0.52
k hat (MLE)	3.514	k star (bias corrected MLE)	3.065
Theta hat (MLE)	676.4	Theta star (bias corrected MLE)	775.4
nu hat (MLE)	154.6	nu star (bias corrected)	134.9
MLE Mean (bias corrected)	2377	MLE Sd (bias corrected)	1358
95% Percentile of Chisquare (2kstar)	12.79	90% Percentile	4197
95% Percentile	4958	99% Percentile	6604

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	6457	6776	95% Approx. Gamma UPL	5082	5224
95% Gamma USL	7117	7541			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2415	SD (KM)	1155
Variance (KM)	1333011	SE of Mean (KM)	252.6
k hat (KM)	4.376	k star (KM)	3.81
nu hat (KM)	192.5	nu star (KM)	167.6
theta hat (KM)	551.9	theta star (KM)	634
80% gamma percentile (KM)	3349	90% gamma percentile (KM)	4074
95% gamma percentile (KM)	4743	99% gamma percentile (KM)	6175

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5793	5943	95% Approx. Gamma UPL	4690	4745
95% KM Gamma Percentile	4493	4536	95% Gamma USL	6318	6523

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.968	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.92	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.137	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.176	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2408	Mean in Log Scale	7.67
SD in Original Scale	1192	SD in Log Scale	0.5
95% UTL95% Coverage	6939	95% BCA UTL95% Coverage	5190
95% Bootstrap (%) UTL95% Coverage	5190	95% UPL (t)	5167
90% Percentile (z)	4069	95% Percentile (z)	4880
99% Percentile (z)	6861	95% USL	7878

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	7.678	95% KM UTL (Lognormal)95% Coverage	6577
KM SD of Logged Data	0.474	95% KM UPL (Lognormal)	4974
95% KM Percentile Lognormal (z)	4711	95% KM USL (Lognormal)	7417

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2374	Mean in Log Scale	7.621
SD in Original Scale	1241	SD in Log Scale	0.606
95% UTL95% Coverage	8466	95% UPL (t)	5923
90% Percentile (z)	4435	95% Percentile (z)	5526
99% Percentile (z)	8350	95% USL	9873

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	22	95% UTL with95% Coverage	5190
Approx, f used to compute achieved CC	1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5069
95% USL	5190	95% KM Chebyshev UPL	7561

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sulfate_mg/l_na_concentration_na)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	22
Minimum	1.41	First Quartile	8.513
Second Largest	28.5	Median	11.55
Maximum	35.4	Third Quartile	17.7
Mean	14.22	SD	8.583

Coefficient of Variation	0.603	Skewness	0.914
Mean of logged Data	2.452	SD of logged Data	0.72

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.927	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.211	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	34.38	90% Percentile (z)	25.22
	95% UPL (t)	29.32	95% Percentile (z)	28.34
	95% USL	36.56	99% Percentile (z)	34.19

Gamma GOF Test

A-D Test Statistic	0.281	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.752	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.129	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.187	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.617	k star (bias corrected MLE)	2.29
Theta hat (MLE)	5.435	Theta star (bias corrected MLE)	6.21
nu hat (MLE)	115.1	nu star (bias corrected)	100.8
MLE Mean (bias corrected)	14.22	MLE Sd (bias corrected)	9.398

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	33.26	90% Percentile	26.8
95% Hawkins Wixley (HW) Approx. Gamma UPL	34.5	95% Percentile	32.34
95% WH Approx. Gamma UTL with 95% Coverage	43.43	99% Percentile	44.52
95% HW Approx. Gamma UTL with 95% Coverage	46.27		
95% WH USL	48.39	95% HW USL	52.16

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.927	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.138	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	63.01		90% Percentile (z)	29.21
	95% UPL (t)	41.21		95% Percentile (z)	37.95
	95% USL	75.65		99% Percentile (z)	61.99

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with	95% Coverage	35.4
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL		0.676
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	35.4	95% BCA Bootstrap UTL with	95% Coverage	35.06
	95% UPL	34.37		90% Percentile	26.51
	90% Chebyshev UPL	40.55		95% Percentile	28.41
	95% Chebyshev UPL	52.47		99% Percentile	33.95
	95% USL	35.4			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_awqc_concentration_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	4	Number of Non-Detects	17
Number of Distinct Detects	3	Number of Distinct Non-Detects	15
Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	6.8	Maximum Non-Detect	74.6
Variance Detected	1.223	Percent Non-Detects	80.95%
Mean Detected	5.375	SD Detected	1.106
Mean of Detected Logged Data	1.666	SD of Detected Logged Data	0.207

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2.106	KM SD	1.872
95% UTL95% Coverage	6.544	95% KM UPL (t)	5.41
90% KM Percentile (z)	4.505	95% KM Percentile (z)	5.185
99% KM Percentile (z)	6.461	95% KM USL	6.936

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	5.795	SD	9.723
95% UTL95% Coverage	28.85	95% UPL (t)	22.96
90% Percentile (z)	18.26	95% Percentile (z)	21.79
99% Percentile (z)	28.41	95% USL	30.88

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.331	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.258	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	31.56	k star (bias corrected MLE)	8.056
Theta hat (MLE)	0.17	Theta star (bias corrected MLE)	0.667
nu hat (MLE)	252.5	nu star (bias corrected)	64.45
MLE Mean (bias corrected)	5.375		
MLE Sd (bias corrected)	1.894	95% Percentile of Chisquare (2kstar)	26.44

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	2.006
Maximum	6.8	Median	1.011
SD	1.792	CV	0.893
k hat (MLE)	1.275	k star (bias corrected MLE)	1.125
Theta hat (MLE)	1.573	Theta star (bias corrected MLE)	1.784
nu hat (MLE)	53.55	nu star (bias corrected)	47.23
MLE Mean (bias corrected)	2.006	MLE Sd (bias corrected)	1.892
95% Percentile of Chisquare (2kstar)	6.466	90% Percentile	4.487
95% Percentile	5.767	99% Percentile	8.713

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	8.243	9.388	95% Approx. Gamma UPL	5.843	6.335

95% Gamma USL	9.205	10.66

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.106	SD (KM)	1.872
Variance (KM)	3.504	SE of Mean (KM)	0.524
k hat (KM)	1.266	k star (KM)	1.117
nu hat (KM)	53.15	nu star (KM)	46.89
theta hat (KM)	1.664	theta star (KM)	1.886
80% gamma percentile (KM)	3.357	90% gamma percentile (KM)	4.719
95% gamma percentile (KM)	6.069	99% gamma percentile (KM)	9.179

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.159	7.291	95% Approx. Gamma UPL	5.282	5.265
95% KM Gamma Percentile	4.953	4.919	95% Gamma USL	7.899	8.112

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2.88	Mean in Log Scale	0.983
SD in Original Scale	1.338	SD in Log Scale	0.368
95% UTL95% Coverage	6.399	95% BCA UTL95% Coverage	5.3
95% Bootstrap (%) UTL95% Coverage	6.8	95% UPL (t)	5.119
90% Percentile (z)	4.284	95% Percentile (z)	4.897
99% Percentile (z)	6.294	95% USL	6.912

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.465	95% KM UTL (Lognormal)95% Coverage	7.828
KM SD of Logged Data	0.672	95% KM UPL (Lognormal)	5.211
95% KM Percentile Lognormal (z)	4.806	95% KM USL (Lognormal)	9.01

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	5.795	Mean in Log Scale	0.788
SD in Original Scale	9.723	SD in Log Scale	1.329
95% UTL95% Coverage	51.4	95% UPL (t)	22.98
90% Percentile (z)	12.08	95% Percentile (z)	19.58
99% Percentile (z)	48.44	95% USL	67.89

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	74.6
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	72.79
95% USL	74.6	95% KM Chebyshev UPL	10.46

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_awqc_concentration_bmi)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	4	Number of Non-Detects	17
Number of Distinct Detects	3	Number of Distinct Non-Detects	15
Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	6.8	Maximum Non-Detect	74.6
Variance Detected	1.223	Percent Non-Detects	80.95%
Mean Detected	5.375	SD Detected	1.106
Mean of Detected Logged Data	1.666	SD of Detected Logged Data	0.207

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2.106	KM SD	1.872
95% UTL95% Coverage	6.544	95% KM UPL (t)	5.41
90% KM Percentile (z)	4.505	95% KM Percentile (z)	5.185
99% KM Percentile (z)	6.461	95% KM USL	6.936

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	5.795	SD	9.723
95% UTL95% Coverage	28.85	95% UPL (t)	22.96

90% Percentile (z)	18.26	95% Percentile (z)	21.79
99% Percentile (z)	28.41	95% USL	30.88

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.331	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.258	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	31.56	k star (bias corrected MLE)	8.056
Theta hat (MLE)	0.17	Theta star (bias corrected MLE)	0.667
nu hat (MLE)	252.5	nu star (bias corrected)	64.45
MLE Mean (bias corrected)	5.375		
MLE Sd (bias corrected)	1.894	95% Percentile of Chisquare (2kstar)	26.44

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	2.006
Maximum	6.8	Median	1.011
SD	1.792	CV	0.893
k hat (MLE)	1.275	k star (bias corrected MLE)	1.125
Theta hat (MLE)	1.573	Theta star (bias corrected MLE)	1.784
nu hat (MLE)	53.55	nu star (bias corrected)	47.23
MLE Mean (bias corrected)	2.006	MLE Sd (bias corrected)	1.892
95% Percentile of Chisquare (2kstar)	6.466	90% Percentile	4.487
95% Percentile	5.767	99% Percentile	8.713

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	8.243	9.388	95% Approx. Gamma UPL	5.843	6.335
95% Gamma USL	9.205	10.66			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.106	SD (KM)	1.872
Variance (KM)	3.504	SE of Mean (KM)	0.524
k hat (KM)	1.266	k star (KM)	1.117
nu hat (KM)	53.15	nu star (KM)	46.89
theta hat (KM)	1.664	theta star (KM)	1.886
80% gamma percentile (KM)	3.357	90% gamma percentile (KM)	4.719

95% gamma percentile (KM)	6.069	99% gamma percentile (KM)	9.179

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.159	7.291	95% Approx. Gamma UPL	5.282	5.265
95% KM Gamma Percentile	4.953	4.919	95% Gamma USL	7.899	8.112

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2.88	Mean in Log Scale	0.983
SD in Original Scale	1.338	SD in Log Scale	0.368
95% UTL95% Coverage	6.399	95% BCA UTL95% Coverage	5.3
95% Bootstrap (%) UTL95% Coverage	6.8	95% UPL (t)	5.119
90% Percentile (z)	4.284	95% Percentile (z)	4.897
99% Percentile (z)	6.294	95% USL	6.912

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.465	95% KM UTL (Lognormal)95% Coverage	7.828
KM SD of Logged Data	0.672	95% KM UPL (Lognormal)	5.211
95% KM Percentile Lognormal (z)	4.806	95% KM USL (Lognormal)	9.01

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	5.795	Mean in Log Scale	0.788
SD in Original Scale	9.723	SD in Log Scale	1.329
95% UTL95% Coverage	51.4	95% UPL (t)	22.98
90% Percentile (z)	12.08	95% Percentile (z)	19.58
99% Percentile (z)	48.44	95% USL	67.89

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	74.6
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	72.79
95% USL	74.6	95% KM Chebyshev UPL	10.46

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_awqc_concentration_fish)

General Statistics

Total Number of Observations	21	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	4	Number of Non-Detects	17
Number of Distinct Detects	3	Number of Distinct Non-Detects	15
Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	6.8	Maximum Non-Detect	74.6
Variance Detected	1.223	Percent Non-Detects	80.95%
Mean Detected	5.375	SD Detected	1.106
Mean of Detected Logged Data	1.666	SD of Detected Logged Data	0.207

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2.106	KM SD	1.872
95% UTL95% Coverage	6.544	95% KM UPL (t)	5.41
90% KM Percentile (z)	4.505	95% KM Percentile (z)	5.185
99% KM Percentile (z)	6.461	95% KM USL	6.936

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	5.795	SD	9.723
95% UTL95% Coverage	28.85	95% UPL (t)	22.96
90% Percentile (z)	18.26	95% Percentile (z)	21.79
99% Percentile (z)	28.41	95% USL	30.88

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.331	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.258	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	31.56	k star (bias corrected MLE)	8.056
Theta hat (MLE)	0.17	Theta star (bias corrected MLE)	0.667
nu hat (MLE)	252.5	nu star (bias corrected)	64.45
MLE Mean (bias corrected)	5.375		
MLE Sd (bias corrected)	1.894	95% Percentile of Chisquare (2kstar)	26.44

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	2.006
Maximum	6.8	Median	1.011
SD	1.792	CV	0.893
k hat (MLE)	1.275	k star (bias corrected MLE)	1.125
Theta hat (MLE)	1.573	Theta star (bias corrected MLE)	1.784
nu hat (MLE)	53.55	nu star (bias corrected)	47.23
MLE Mean (bias corrected)	2.006	MLE Sd (bias corrected)	1.892
95% Percentile of Chisquare (2kstar)	6.466	90% Percentile	4.487
95% Percentile	5.767	99% Percentile	8.713

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	8.243	9.388	95% Approx. Gamma UPL	5.843	6.335
95% Gamma USL	9.205	10.66			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.106	SD (KM)	1.872
Variance (KM)	3.504	SE of Mean (KM)	0.524
k hat (KM)	1.266	k star (KM)	1.117
nu hat (KM)	53.15	nu star (KM)	46.89
theta hat (KM)	1.664	theta star (KM)	1.886
80% gamma percentile (KM)	3.357	90% gamma percentile (KM)	4.719
95% gamma percentile (KM)	6.069	99% gamma percentile (KM)	9.179

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.159	7.291	95% Approx. Gamma UPL	5.282	5.265
95% KM Gamma Percentile	4.953	4.919	95% Gamma USL	7.899	8.112

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level	

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2.88	Mean in Log Scale	0.983
SD in Original Scale	1.338	SD in Log Scale	0.368
95% UTL95% Coverage	6.399	95% BCA UTL95% Coverage	5.3
95% Bootstrap (%) UTL95% Coverage	6.8	95% UPL (t)	5.119
90% Percentile (z)	4.284	95% Percentile (z)	4.897
99% Percentile (z)	6.294	95% USL	6.912

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.465	95% KM UTL (Lognormal)95% Coverage	7.828
KM SD of Logged Data	0.672	95% KM UPL (Lognormal)	5.211
95% KM Percentile Lognormal (z)	4.806	95% KM USL (Lognormal)	9.01

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	5.795	Mean in Log Scale	0.788
SD in Original Scale	9.723	SD in Log Scale	1.329
95% UTL95% Coverage	51.4	95% UPL (t)	22.98
90% Percentile (z)	12.08	95% Percentile (z)	19.58
99% Percentile (z)	48.44	95% USL	67.89

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	21	95% UTL with95% Coverage	74.6
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
Approximate Sample Size needed to achieve specified CC	59	95% UPL	72.79
95% USL	74.6	95% KM Chebyshev UPL	10.46

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_awqc_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	17

Minimum	0.0092	First Quartile	0.018
Second Largest	0.56	Median	0.027
Maximum	1	Third Quartile	0.062
Mean	0.118	SD	0.238
Coefficient of Variation	2.011	Skewness	3.121
Mean of logged Data	-3.199	SD of logged Data	1.31

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.503	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.387	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.682	90% Percentile (z)	0.423
95% UPL (t)	0.538	95% Percentile (z)	0.51
95% USL	0.732	99% Percentile (z)	0.672

Gamma GOF Test

A-D Test Statistic	2.063	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.798	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.269	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.583	k star (bias corrected MLE)	0.532
Theta hat (MLE)	0.203	Theta star (bias corrected MLE)	0.223
nu hat (MLE)	24.49	nu star (bias corrected)	22.33
MLE Mean (bias corrected)	0.118	MLE Sd (bias corrected)	0.162

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.422	90% Percentile	0.316
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.414	95% Percentile	0.445
95% WH Approx. Gamma UTL with 95% Coverage	0.674	99% Percentile	0.759
95% HW Approx. Gamma UTL with 95% Coverage	0.697		
95% WH USL	0.779	95% HW USL	0.823

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.17	**Lilliefors Lognormal GOF Test**

10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.913	90% Percentile (z)	0.219
	95% UPL (t)	0.413	95% Percentile (z)	0.352
	95% USL	1.201	99% Percentile (z)	0.861

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	1
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1	95% BCA Bootstrap UTL with 95% Coverage	1
95% UPL	0.956	90% Percentile	0.24
90% Chebyshev UPL	0.849	95% Percentile	0.56
95% Chebyshev UPL	1.179	99% Percentile	0.912
95% USL	1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_awqc_hq_signif_bmi)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	17
Minimum	0.0092	First Quartile	0.018
Second Largest	0.56	Median	0.027
Maximum	1	Third Quartile	0.062
Mean	0.118	SD	0.238
Coefficient of Variation	2.011	Skewness	3.121
Mean of logged Data	-3.199	SD of logged Data	1.31

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.503	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.387	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.682		90% Percentile (z)	0.423
	95% UPL (t)	0.538		95% Percentile (z)	0.51
	95% USL	0.732		99% Percentile (z)	0.672

Gamma GOF Test

A-D Test Statistic	2.063	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.798	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.269	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.199	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.583	k star (bias corrected MLE)	0.532
Theta hat (MLE)	0.203	Theta star (bias corrected MLE)	0.223
nu hat (MLE)	24.49	nu star (bias corrected)	22.33
MLE Mean (bias corrected)	0.118	MLE Sd (bias corrected)	0.162

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.422	90% Percentile	0.316
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.414	95% Percentile	0.445
95% WH Approx. Gamma UTL with 95% Coverage	0.674	99% Percentile	0.759
95% HW Approx. Gamma UTL with 95% Coverage	0.697		
95% WH USL	0.779	95% HW USL	0.823

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.17	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.913		90% Percentile (z)	0.219
	95% UPL (t)	0.413		95% Percentile (z)	0.352
	95% USL	1.201		99% Percentile (z)	0.861

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21		95% UTL with	95% Coverage	1
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL			0.659
		Approximate Sample Size needed to achieve specified CC			59

95% Percentile Bootstrap UTL with	95% Coverage	1	95% BCA Bootstrap UTL with	95% Coverage	1
	95% UPL	0.956		90% Percentile	0.24
	90% Chebyshev UPL	0.849		95% Percentile	0.56
	95% Chebyshev UPL	1.179		99% Percentile	0.912
	95% USL	1			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_awqc_hq_signif_fish)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	17
Minimum	0.0092	First Quartile	0.018
Second Largest	0.56	Median	0.027
Maximum	1	Third Quartile	0.062
Mean	0.118	SD	0.238
Coefficient of Variation	2.011	Skewness	3.121
Mean of logged Data	-3.199	SD of logged Data	1.31

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.503	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.387	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.682		90% Percentile (z)	0.423
	95% UPL (t)	0.538		95% Percentile (z)	0.51
	95% USL	0.732		99% Percentile (z)	0.672

Gamma GOF Test

A-D Test Statistic	2.063	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.798	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.269	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.583	k star (bias corrected MLE)	0.532
Theta hat (MLE)	0.203	Theta star (bias corrected MLE)	0.223
nu hat (MLE)	24.49	nu star (bias corrected)	22.33
MLE Mean (bias corrected)	0.118	MLE Sd (bias corrected)	0.162

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.422	90% Percentile	0.316
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.414	95% Percentile	0.445
95% WH Approx. Gamma UTL with 95% Coverage	0.674	99% Percentile	0.759
95% HW Approx. Gamma UTL with 95% Coverage	0.697		
95% WH USL	0.779	95% HW USL	0.823

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.17	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.913	90% Percentile (z)	0.219
95% UPL (t)	0.413	95% Percentile (z)	0.352
95% USL	1.201	99% Percentile (z)	0.861

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with 95% Coverage	1
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL	0.659
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1	95% BCA Bootstrap UTL with 95% Coverage	1
95% UPL	0.956	90% Percentile	0.24
90% Chebyshev UPL	0.849	95% Percentile	0.56
95% Chebyshev UPL	1.179	99% Percentile	0.912
95% USL	1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

General Statistics

Total Number of Observations	22	Number of Distinct Observations	17
Minimum	0.0069	First Quartile	0.0103
Second Largest	0.47	Median	0.014
Maximum	0.5	Third Quartile	0.0398
Mean	0.0858	SD	0.151
Coefficient of Variation	1.764	Skewness	2.128
Mean of logged Data	-3.588	SD of logged Data	1.394

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.349	d2max (for USL)	2.603

Normal GOF Test

Shapiro Wilk Test Statistic	0.57	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.878	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.387	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.214	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.441	90% Percentile (z)	0.28
	95% UPL (t)	0.352	95% Percentile (z)	0.335
	95% USL	0.48	99% Percentile (z)	0.438

Gamma GOF Test

A-D Test Statistic	2.664	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.8	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.283	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.195	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.552	k star (bias corrected MLE)	0.507
Theta hat (MLE)	0.155	Theta star (bias corrected MLE)	0.169
nu hat (MLE)	24.31	nu star (bias corrected)	22.33
MLE Mean (bias corrected)	0.0858	MLE Sd (bias corrected)	0.12

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.316	90% Percentile	0.231
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.314	95% Percentile	0.328
95% WH Approx. Gamma UTL with	95% Coverage	0.504	99% Percentile	0.565
95% HW Approx. Gamma UTL with	95% Coverage	0.531		
	95% WH USL	0.603	95% HW USL	0.653

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.806	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.926	Data Not Lognormal at 10% Significance Level

Lilliefors Test Statistic	0.244	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.169	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.73	90% Percentile (z)	0.165
	95% UPL (t)	0.321	95% Percentile (z)	0.274
	95% USL	1.04	99% Percentile (z)	0.708

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		22	95% UTL with 95% Coverage	0.5
Approx, f used to compute achieved CC		1.158	Approximate Actual Confidence Coefficient achieved by UTL	0.676
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.5	95% BCA Bootstrap UTL with 95% Coverage	0.499
	95% UPL	0.496	90% Percentile	0.332
	90% Chebyshev UPL	0.55	95% Percentile	0.464
	95% Chebyshev UPL	0.76	99% Percentile	0.494
	95% USL	0.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

General Statistics

Total Number of Observations	21	Number of Distinct Observations	20
Minimum	0.0069	First Quartile	0.013
Second Largest	0.43	Median	0.021
Maximum	0.78	Third Quartile	0.049
Mean	0.0916	SD	0.185
Coefficient of Variation	2.02	Skewness	3.133
Mean of logged Data	-3.467	SD of logged Data	1.318

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.371	d2max (for USL)	2.58

Normal GOF Test

Shapiro Wilk Test Statistic	0.502	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.873	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.39	**Lilliefors GOF Test**

1% Lilliefors Critical Value	0.219	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.531	90% Percentile (z)	0.329
	95% UPL (t)	0.418	95% Percentile (z)	0.396
	95% USL	0.569	99% Percentile (z)	0.522

Gamma GOF Test

A-D Test Statistic	2.065	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.798	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.275	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.577	k star (bias corrected MLE)	0.527
Theta hat (MLE)	0.159	Theta star (bias corrected MLE)	0.174
nu hat (MLE)	24.24	nu star (bias corrected)	22.11
MLE Mean (bias corrected)	0.0916	MLE Sd (bias corrected)	0.126

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.328	90% Percentile	0.245
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.321	95% Percentile	0.346
95% WH Approx. Gamma UTL with 95% Coverage	0.524	99% Percentile	0.591
95% HW Approx. Gamma UTL with 95% Coverage	0.542		
95% WH USL	0.606	95% HW USL	0.64

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.88	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.17	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.173	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.711	90% Percentile (z)	0.169
	95% UPL (t)	0.32	95% Percentile (z)	0.273
	95% USL	0.938	99% Percentile (z)	0.671

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	21	95% UTL with	95% Coverage	0.78
Approx, f used to compute achieved CC	1.105	Approximate Actual Confidence Coefficient achieved by UTL		0.659

Table C3-5
ProUCL Output for Porewater BTVs and BTV HQs, Approach B
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.78	95% BCA Bootstrap UTL with	95% Coverage	0.78
	95% UPL	0.745		90% Percentile	0.19
	90% Chebyshev UPL	0.66		95% Percentile	0.43
	95% Chebyshev UPL	0.918		99% Percentile	0.71
	95% USL	0.78			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Table C3-6
ProUCL Output for Porewater BTVs and BTV HQs, Approach C
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 10/3/2023 1:37:25 PM
From File	porewater_utl_input_ph3.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

concDL (alkalinity_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
Minimum	47	First Quartile	55.25
Second Largest	111	Median	61.5
Maximum	117	Third Quartile	78.25
Mean	71.5	SD	22.39
Coefficient of Variation	0.313	Skewness	1.015
Mean of logged Data	4.228	SD of logged Data	0.289

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.838	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.227	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	126.4	90% Percentile (z)	100.2
	95% UPL (t)	111.5	95% Percentile (z)	108.3
	95% USL	127.6	99% Percentile (z)	123.6

Gamma GOF Test

A-D Test Statistic	1.014	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.229	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	12.21	k star (bias corrected MLE)	10.21
Theta hat (MLE)	5.856	Theta star (bias corrected MLE)	7.001
nu hat (MLE)	439.6	nu star (bias corrected)	367.6
MLE Mean (bias corrected)	71.5	MLE Sd (bias corrected)	22.37

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		113.4	90% Percentile	101.3
95% Hawkins Wixley (HW) Approx. Gamma UPL		113.7	95% Percentile	111.8
95% WH Approx. Gamma UTL with	95% Coverage	133.6	99% Percentile	133.5
95% HW Approx. Gamma UTL with	95% Coverage	134.8		
	95% WH USL	135.2	95% HW USL	136.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.886	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.219	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	139.2	90% Percentile (z)		99.29
	95% UPL (t)	114.9	95% Percentile (z)		110.3
	95% USL	141.3	99% Percentile (z)		134.2

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	117
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	117	95% BCA Bootstrap UTL with	95% Coverage	117
	95% UPL	117		90% Percentile	106.8
	90% Chebyshev UPL	140.5		95% Percentile	111.9
	95% Chebyshev UPL	171.8		99% Percentile	116
	95% USL	117			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	5	Number of Non-Detects	13
Number of Distinct Detects	5	Number of Distinct Non-Detects	12
Minimum Detect	59.2	Minimum Non-Detect	4
Maximum Detect	143	Maximum Non-Detect	27.9
Variance Detected	1206	Percent Non-Detects	72.22%
Mean Detected	81.9	SD Detected	34.73
Mean of Detected Logged Data	4.348	SD of Detected Logged Data	0.356

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.711	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.361	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	25.64	KM SD	38.54
95% UTL95% Coverage	120.2	95% KM UPL (t)	94.52
90% KM Percentile (z)	75.03	95% KM Percentile (z)	89.04

99% KM Percentile (z)	115.3	95% KM USL	122.1

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	27.02	SD	39.02
95% UTL95% Coverage	122.7	95% UPL (t)	96.76
90% Percentile (z)	77.03	95% Percentile (z)	91.2
99% Percentile (z)	117.8	95% USL	124.7

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.731	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.679	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.334	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.358	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	8.913	k star (bias corrected MLE)	3.699
Theta hat (MLE)	9.188	Theta star (bias corrected MLE)	22.14
nu hat (MLE)	89.13	nu star (bias corrected)	36.99
MLE Mean (bias corrected)	81.9		
MLE Sd (bias corrected)	42.59	95% Percentile of Chisquare (2kstar)	14.64

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	22.76
Maximum	143	Median	0.01
SD	41.33	CV	1.816
k hat (MLE)	0.147	k star (bias corrected MLE)	0.16
Theta hat (MLE)	154.8	Theta star (bias corrected MLE)	142.6
nu hat (MLE)	5.293	nu star (bias corrected)	5.744
MLE Mean (bias corrected)	22.76	MLE Sd (bias corrected)	56.97
95% Percentile of Chisquare (2kstar)	1.735	90% Percentile	67.99
95% Percentile	123.7	99% Percentile	283.4

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	215.2	276.9	95% Approx. Gamma UPL	105.9	112.7
95% Gamma USL	225.8	294.4			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	25.64	SD (KM)	38.54
Variance (KM)	1485	SE of Mean (KM)	10.16
k hat (KM)	0.443	k star (KM)	0.406
nu hat (KM)	15.93	nu star (KM)	14.61
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80% gamma percentile (KM)	41.45	90% gamma percentile (KM)	72.23
95% gamma percentile (KM)	106	99% gamma percentile (KM)	190.8

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	154.6	166.6	95% Approx. Gamma UPL	93.88	94.68

95% KM Gamma Percentile	83.4	82.96	95% Gamma USL	160.1	173.5

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.776	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.311	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.319	Detected Data appear Lognormal at 10% Significance Level	

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	37.59	Mean in Log Scale	3.386
SD in Original Scale	32.98	SD in Log Scale	0.645
95% UTL95% Coverage	144	95% BCA UTL95% Coverage	143
95% Bootstrap (%) UTL95% Coverage	143	95% UPL (t)	93.69
90% Percentile (z)	67.6	95% Percentile (z)	85.47
99% Percentile (z)	132.7	95% USL	148.8

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.209	95% KM UTL (Lognormal)95% Coverage	242.1
KM SD of Logged Data	1.337	95% KM UPL (Lognormal)	99.4
95% KM Percentile Lognormal (z)	82.16	95% KM USL (Lognormal)	259.2

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	27.02	Mean in Log Scale	2.346
SD in Original Scale	39.02	SD in Log Scale	1.397
95% UTL95% Coverage	321.5	95% UPL (t)	126.8
90% Percentile (z)	62.57	95% Percentile (z)	104
99% Percentile (z)	269.4	95% USL	345.3

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	143
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	143
95% USL	143	95% KM Chebyshev UPL	198.2

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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concDL (aluminum_ug/l_concentration_bmi_awqc)

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90% KM Percentile (z)	75.03	95% KM Percentile (z)	89.04
99% KM Percentile (z)	115.3	95% KM USL	122.1

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	27.02	SD	39.02
95% UTL95% Coverage	122.7	95% UPL (t)	96.76
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MLE Mean (bias corrected)	22.76	MLE Sd (bias corrected)	56.97
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95% Percentile	123.7	99% Percentile	283.4

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	215.2	276.9	95% Approx. Gamma UPL	105.9	112.7

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Mean (KM)	25.64	SD (KM)	38.54
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SD in Original Scale	32.98	SD in Log Scale	0.645
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95% Bootstrap (%) UTL95% Coverage	143	95% UPL (t)	93.69
90% Percentile (z)	67.6	95% Percentile (z)	85.47
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Mean in Original Scale	27.02	Mean in Log Scale	2.346
SD in Original Scale	39.02	SD in Log Scale	1.397
95% UTL95% Coverage	321.5	95% UPL (t)	126.8
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Mean in Original Scale	37.59	Mean in Log Scale	3.386
SD in Original Scale	32.98	SD in Log Scale	0.645
95% UTL95% Coverage	144	95% BCA UTL95% Coverage	143
95% Bootstrap (%) UTL95% Coverage	143	95% UPL (t)	93.69
90% Percentile (z)	67.6	95% Percentile (z)	85.47
99% Percentile (z)	132.7	95% USL	148.8

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.209	95% KM UTL (Lognormal)95% Coverage	242.1
KM SD of Logged Data	1.337	95% KM UPL (Lognormal)	99.4
95% KM Percentile Lognormal (z)	82.16	95% KM USL (Lognormal)	259.2

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	27.02	Mean in Log Scale	2.346
SD in Original Scale	39.02	SD in Log Scale	1.397
95% UTL95% Coverage	321.5	95% UPL (t)	126.8
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Approximate Sample Size needed to achieve specified CC	59	95% UPL	143
95% USL	143	95% KM Chebyshev UPL	198.2

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concDL (aluminum_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.012	First Quartile	0.022
Second Largest	0.27	Median	0.041
Maximum	0.43	Third Quartile	0.168
Mean	0.1	SD	0.118
Coefficient of Variation	1.181	Skewness	1.627
Mean of logged Data	-2.922	SD of logged Data	1.132

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.75	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.318	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.39	90% Percentile (z)	0.251
	95% UPL (t)	0.311	95% Percentile (z)	0.294
	95% USL	0.396	99% Percentile (z)	0.375

Gamma GOF Test

A-D Test Statistic	1.05	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.238	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.939	k star (bias corrected MLE)	0.82
Theta hat (MLE)	0.106	Theta star (bias corrected MLE)	0.122
nu hat (MLE)	33.81	nu star (bias corrected)	29.51
MLE Mean (bias corrected)	0.1	MLE Sd (bias corrected)	0.11

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.337	90% Percentile	0.242
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.348	95% Percentile	0.322
95% WH Approx. Gamma UTL with 95% Coverage	0.52	99% Percentile	0.51
95% HW Approx. Gamma UTL with 95% Coverage	0.566		
95% WH USL	0.537	95% HW USL	0.586

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.865	90% Percentile (z)	0.23
95% UPL (t)	0.407	95% Percentile (z)	0.347
95% USL	0.917	99% Percentile (z)	0.75

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.43
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.43	95% BCA Bootstrap UTL with 95% Coverage	0.43
95% UPL	0.43	90% Percentile	0.249
90% Chebyshev UPL	0.464	95% Percentile	0.294
95% Chebyshev UPL	0.629	99% Percentile	0.403
95% USL	0.43		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	14
Minimum	9.8000E-4	First Quartile	0.0016
Second Largest	0.019	Median	0.00295
Maximum	0.035	Third Quartile	0.0122
Mean	0.00763	SD	0.00909
Coefficient of Variation	1.19	Skewness	1.888
Mean of logged Data	-5.476	SD of logged Data	1.117

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.738	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.259	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0299	90% Percentile (z)	0.0193
	95% UPL (t)	0.0239	95% Percentile (z)	0.0226
	95% USL	0.0304	99% Percentile (z)	0.0288

Gamma GOF Test

A-D Test Statistic	0.934	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.223	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.964	k star (bias corrected MLE)	0.841
Theta hat (MLE)	0.00791	Theta star (bias corrected MLE)	0.00908
nu hat (MLE)	34.72	nu star (bias corrected)	30.27
MLE Mean (bias corrected)	0.00763	MLE Sd (bias corrected)	0.00832

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0255	90% Percentile	0.0183
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0262	95% Percentile	0.0243
95% WH Approx. Gamma UTL with	95% Coverage	0.0391	99% Percentile	0.0384
95% HW Approx. Gamma UTL with	95% Coverage	0.0425		
	95% WH USL	0.0404	95% HW USL	0.044

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.91	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0647	90% Percentile (z)	0.0175
	95% UPL (t)	0.0308	95% Percentile (z)	0.0263
	95% USL	0.0685	99% Percentile (z)	0.0562

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	0.035
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.035	95% BCA Bootstrap UTL with 95% Coverage	0.035
	95% UPL	0.035	90% Percentile	0.0169
	90% Chebyshev UPL	0.0356	95% Percentile	0.0214
	95% Chebyshev UPL	0.0483	99% Percentile	0.0323
	95% USL	0.035		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.012	First Quartile	0.022
Second Largest	0.27	Median	0.041
Maximum	0.43	Third Quartile	0.168
Mean	0.1	SD	0.118
Coefficient of Variation	1.181	Skewness	1.627
Mean of logged Data	-2.922	SD of logged Data	1.132

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.75	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.318	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.39	90% Percentile (z)	0.251
	95% UPL (t)	0.311	95% Percentile (z)	0.294
	95% USL	0.396	99% Percentile (z)	0.375

Gamma GOF Test

A-D Test Statistic	1.05	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.238	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.939	k star (bias corrected MLE)	0.82
Theta hat (MLE)	0.106	Theta star (bias corrected MLE)	0.122
nu hat (MLE)	33.81	nu star (bias corrected)	29.51
MLE Mean (bias corrected)	0.1	MLE Sd (bias corrected)	0.11

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.337	90% Percentile	0.242
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.348	95% Percentile	0.322
95% WH Approx. Gamma UTL with	95% Coverage	0.52	99% Percentile	0.51
95% HW Approx. Gamma UTL with	95% Coverage	0.566		
	95% WH USL	0.537	95% HW USL	0.586

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.865	90% Percentile (z)	0.23
	95% UPL (t)	0.407	95% Percentile (z)	0.347

95% USL	0.917	99% Percentile (z)	0.75

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.43
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.43	95% BCA Bootstrap UTL with 95% Coverage	0.43
95% UPL	0.43	90% Percentile	0.249
90% Chebyshev UPL	0.464	95% Percentile	0.294
95% Chebyshev UPL	0.629	99% Percentile	0.403
95% USL	0.43		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.012	First Quartile	0.022
Second Largest	0.27	Median	0.041
Maximum	0.43	Third Quartile	0.168
Mean	0.1	SD	0.118
Coefficient of Variation	1.181	Skewness	1.627
Mean of logged Data	-2.922	SD of logged Data	1.132

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.75	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.318	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.39	90% Percentile (z)	0.251
95% UPL (t)	0.311	95% Percentile (z)	0.294
95% USL	0.396	99% Percentile (z)	0.375

Gamma GOF Test

A-D Test Statistic	1.05	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.238	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.939	k star (bias corrected MLE)	0.82
Theta hat (MLE)	0.106	Theta star (bias corrected MLE)	0.122

nu hat (MLE)	33.81	nu star (bias corrected)	29.51
MLE Mean (bias corrected)	0.1	MLE Sd (bias corrected)	0.11

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.337	90% Percentile	0.242
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.348	95% Percentile	0.322
95% WH Approx. Gamma UTL with 95% Coverage	0.52	99% Percentile	0.51
95% HW Approx. Gamma UTL with 95% Coverage	0.566		
95% WH USL	0.537	95% HW USL	0.586

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.865	90% Percentile (z)	0.23
95% UPL (t)	0.407	95% Percentile (z)	0.347
95% USL	0.917	99% Percentile (z)	0.75

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.43
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.43	95% BCA Bootstrap UTL with 95% Coverage	0.43
95% UPL	0.43	90% Percentile	0.249
90% Chebyshev UPL	0.464	95% Percentile	0.294
95% Chebyshev UPL	0.629	99% Percentile	0.403
95% USL	0.43		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	11
Minimum Detect	0.311	Minimum Non-Detect	0.076
Maximum Detect	0.663	Maximum Non-Detect	0.249
Variance Detected	0.0203	Percent Non-Detects	66.67%
Mean Detected	0.45	SD Detected	0.142
Mean of Detected Logged Data	-0.838	SD of Detected Logged Data	0.3

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.848	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.201	KM SD	0.192
95% UTL95% Coverage	0.671	95% KM UPL (t)	0.543
90% KM Percentile (z)	0.446	95% KM Percentile (z)	0.516
99% KM Percentile (z)	0.646	95% KM USL	0.681

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.217	SD	0.188
95% UTL95% Coverage	0.677	95% UPL (t)	0.552
90% Percentile (z)	0.457	95% Percentile (z)	0.525
99% Percentile (z)	0.653	95% USL	0.686

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.518	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.316	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.99	k star (bias corrected MLE)	6.605
Theta hat (MLE)	0.0346	Theta star (bias corrected MLE)	0.0681
nu hat (MLE)	155.8	nu star (bias corrected)	79.26
MLE Mean (bias corrected)	0.45		
MLE Sd (bias corrected)	0.175	95% Percentile of Chisquare (2kstar)	22.64

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.166
Maximum	0.663	Median	0.0176
SD	0.222	CV	1.339
k hat (MLE)	0.562	k star (bias corrected MLE)	0.505
Theta hat (MLE)	0.295	Theta star (bias corrected MLE)	0.328
nu hat (MLE)	20.21	nu star (bias corrected)	18.18
MLE Mean (bias corrected)	0.166	MLE Sd (bias corrected)	0.233
95% Percentile of Chisquare (2kstar)	3.866	90% Percentile	0.447
95% Percentile	0.634	99% Percentile	1.093

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.108	1.264	95% Approx. Gamma UPL	0.663	0.698
95% Gamma USL	1.149	1.318			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.201	SD (KM)	0.192

Variance (KM)	0.0367	SE of Mean (KM)	0.0495
k hat (KM)	1.097	k star (KM)	0.951
nu hat (KM)	39.48	nu star (KM)	34.23
theta hat (KM)	0.183	theta star (KM)	0.211
80% gamma percentile (KM)	0.324	90% gamma percentile (KM)	0.468
95% gamma percentile (KM)	0.612	99% gamma percentile (KM)	0.948

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.823	0.862	95% Approx. Gamma UPL	0.568	0.575
95% KM Gamma Percentile	0.521	0.524	95% Gamma USL	0.845	0.888

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.882	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.826	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.252	Mean in Log Scale	-1.535
SD in Original Scale	0.164	SD in Log Scale	0.539
95% UTL95% Coverage	0.807	95% BCA UTL95% Coverage	0.663
95% Bootstrap (%) UTL95% Coverage	0.663	95% UPL (t)	0.564
90% Percentile (z)	0.43	95% Percentile (z)	0.522
99% Percentile (z)	0.754	95% USL	0.83

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.997	95% KM UTL (Lognormal)95% Coverage	1.053
KM SD of Logged Data	0.835	95% KM UPL (Lognormal)	0.604
95% KM Percentile Lognormal (z)	0.536	95% KM USL (Lognormal)	1.099

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.217	Mean in Log Scale	-1.842
SD in Original Scale	0.188	SD in Log Scale	0.793
95% UTL95% Coverage	1.109	95% UPL (t)	0.654
90% Percentile (z)	0.438	95% Percentile (z)	0.584
99% Percentile (z)	1.003	95% USL	1.154

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.663
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.663
95% USL	0.663	95% KM Chebyshev UPL	1.059

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	11
Minimum Detect	0.311	Minimum Non-Detect	0.076
Maximum Detect	0.663	Maximum Non-Detect	0.249
Variance Detected	0.0203	Percent Non-Detects	66.67%
Mean Detected	0.45	SD Detected	0.142
Mean of Detected Logged Data	-0.838	SD of Detected Logged Data	0.3

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.848	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.201	KM SD	0.192
95% UTL95% Coverage	0.671	95% KM UPL (t)	0.543
90% KM Percentile (z)	0.446	95% KM Percentile (z)	0.516
99% KM Percentile (z)	0.646	95% KM USL	0.681

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.217	SD	0.188
95% UTL95% Coverage	0.677	95% UPL (t)	0.552
90% Percentile (z)	0.457	95% Percentile (z)	0.525
99% Percentile (z)	0.653	95% USL	0.686

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.518	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.316	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.99	k star (bias corrected MLE)	6.605
Theta hat (MLE)	0.0346	Theta star (bias corrected MLE)	0.0681
nu hat (MLE)	155.8	nu star (bias corrected)	79.26
MLE Mean (bias corrected)	0.45		
MLE Sd (bias corrected)	0.175	95% Percentile of Chisquare (2kstar)	22.64

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.166
Maximum	0.663	Median	0.0176

SD	0.222	CV	1.339
k hat (MLE)	0.562	k star (bias corrected MLE)	0.505
Theta hat (MLE)	0.295	Theta star (bias corrected MLE)	0.328
nu hat (MLE)	20.21	nu star (bias corrected)	18.18
MLE Mean (bias corrected)	0.166	MLE Sd (bias corrected)	0.233
95% Percentile of Chisquare (2kstar)	3.866	90% Percentile	0.447
95% Percentile	0.634	99% Percentile	1.093

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.108	1.264	95% Approx. Gamma UPL	0.663	0.698
95% Gamma USL	1.149	1.318			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.201	SD (KM)	0.192
Variance (KM)	0.0367	SE of Mean (KM)	0.0495
k hat (KM)	1.097	k star (KM)	0.951
nu hat (KM)	39.48	nu star (KM)	34.23
theta hat (KM)	0.183	theta star (KM)	0.211
80% gamma percentile (KM)	0.324	90% gamma percentile (KM)	0.468
95% gamma percentile (KM)	0.612	99% gamma percentile (KM)	0.948

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.823	0.862	95% Approx. Gamma UPL	0.568	0.575
95% KM Gamma Percentile	0.521	0.524	95% Gamma USL	0.845	0.888

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.882	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.826	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.252	Mean in Log Scale	-1.535
SD in Original Scale	0.164	SD in Log Scale	0.539
95% UTL95% Coverage	0.807	95% BCA UTL95% Coverage	0.663
95% Bootstrap (%) UTL95% Coverage	0.663	95% UPL (t)	0.564
90% Percentile (z)	0.43	95% Percentile (z)	0.522
99% Percentile (z)	0.754	95% USL	0.83

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.997	95% KM UTL (Lognormal)95% Coverage	1.053
KM SD of Logged Data	0.835	95% KM UPL (Lognormal)	0.604
95% KM Percentile Lognormal (z)	0.536	95% KM USL (Lognormal)	1.099

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.217	Mean in Log Scale	-1.842
SD in Original Scale	0.188	SD in Log Scale	0.793
95% UTL95% Coverage	1.109	95% UPL (t)	0.654
90% Percentile (z)	0.438	95% Percentile (z)	0.584
99% Percentile (z)	1.003	95% USL	1.154

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.663
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.663
95% USL	0.663	95% KM Chebyshev UPL	1.059

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	11
Minimum Detect	0.311	Minimum Non-Detect	0.076
Maximum Detect	0.663	Maximum Non-Detect	0.249
Variance Detected	0.0203	Percent Non-Detects	66.67%
Mean Detected	0.45	SD Detected	0.142
Mean of Detected Logged Data	-0.838	SD of Detected Logged Data	0.3

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.848	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.201	KM SD	0.192
95% UTL95% Coverage	0.671	95% KM UPL (t)	0.543
90% KM Percentile (z)	0.446	95% KM Percentile (z)	0.516
99% KM Percentile (z)	0.646	95% KM USL	0.681

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.217	SD	0.188
95% UTL95% Coverage	0.677	95% UPL (t)	0.552
90% Percentile (z)	0.457	95% Percentile (z)	0.525
99% Percentile (z)	0.653	95% USL	0.686

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.518	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.316	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.99	k star (bias corrected MLE)	6.605
Theta hat (MLE)	0.0346	Theta star (bias corrected MLE)	0.0681
nu hat (MLE)	155.8	nu star (bias corrected)	79.26
MLE Mean (bias corrected)	0.45		
MLE Sd (bias corrected)	0.175	95% Percentile of Chisquare (2kstar)	22.64

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.166
Maximum	0.663	Median	0.0176
SD	0.222	CV	1.339
k hat (MLE)	0.562	k star (bias corrected MLE)	0.505
Theta hat (MLE)	0.295	Theta star (bias corrected MLE)	0.328
nu hat (MLE)	20.21	nu star (bias corrected)	18.18
MLE Mean (bias corrected)	0.166	MLE Sd (bias corrected)	0.233
95% Percentile of Chisquare (2kstar)	3.866	90% Percentile	0.447
95% Percentile	0.634	99% Percentile	1.093

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.108	1.264	95% Approx. Gamma UPL	0.663	0.698
95% Gamma USL	1.149	1.318			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.201	SD (KM)	0.192
Variance (KM)	0.0367	SE of Mean (KM)	0.0495
k hat (KM)	1.097	k star (KM)	0.951
nu hat (KM)	39.48	nu star (KM)	34.23
theta hat (KM)	0.183	theta star (KM)	0.211
80% gamma percentile (KM)	0.324	90% gamma percentile (KM)	0.468
95% gamma percentile (KM)	0.612	99% gamma percentile (KM)	0.948

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.823	0.862	95% Approx. Gamma UPL	0.568	0.575
95% KM Gamma Percentile	0.521	0.524	95% Gamma USL	0.845	0.888

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.882	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.826	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.252	Mean in Log Scale	-1.535
SD in Original Scale	0.164	SD in Log Scale	0.539
95% UTL95% Coverage	0.807	95% BCA UTL95% Coverage	0.663
95% Bootstrap (%) UTL95% Coverage	0.663	95% UPL (t)	0.564
90% Percentile (z)	0.43	95% Percentile (z)	0.522
99% Percentile (z)	0.754	95% USL	0.83

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.997	95% KM UTL (Lognormal)95% Coverage	1.053
KM SD of Logged Data	0.835	95% KM UPL (Lognormal)	0.604
95% KM Percentile Lognormal (z)	0.536	95% KM USL (Lognormal)	1.099

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.217	Mean in Log Scale	-1.842
SD in Original Scale	0.188	SD in Log Scale	0.793
95% UTL95% Coverage	1.109	95% UPL (t)	0.654
90% Percentile (z)	0.438	95% Percentile (z)	0.584
99% Percentile (z)	1.003	95% USL	1.154

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.663
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.663
95% USL	0.663	95% KM Chebyshev UPL	1.059

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.015	Median	0.006
Maximum	0.017	Third Quartile	0.0089
Mean	0.00724	SD	0.0038
Coefficient of Variation	0.525	Skewness	1.432
Mean of logged Data	-5.046	SD of logged Data	0.502

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.852	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0166	90% Percentile (z)	0.0121
	95% UPL (t)	0.014	95% Percentile (z)	0.0135
	95% USL	0.0168	99% Percentile (z)	0.0161

Gamma GOF Test

A-D Test Statistic	0.58	**Anderson-Darling Gamma GOF Test**

5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.203	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.407	k star (bias corrected MLE)	3.71
Theta hat (MLE)	0.00164	Theta star (bias corrected MLE)	0.00195
nu hat (MLE)	158.7	nu star (bias corrected)	133.5
MLE Mean (bias corrected)	0.00724	MLE Sd (bias corrected)	0.00376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0147	90% Percentile	0.0123
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0149	95% Percentile	0.0143
95% WH Approx. Gamma UTL with 95% Coverage	0.0188	99% Percentile	0.0187
95% HW Approx. Gamma UTL with 95% Coverage	0.0194		
95% WH USL	0.0191	95% HW USL	0.0197

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.171	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0221	90% Percentile (z)	0.0122
95% UPL (t)	0.0158	95% Percentile (z)	0.0147
95% USL	0.0226	99% Percentile (z)	0.0207

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.017
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.017	95% BCA Bootstrap UTL with 95% Coverage	0.017
95% UPL	0.017	90% Percentile	0.0115
90% Chebyshev UPL	0.019	95% Percentile	0.0153
95% Chebyshev UPL	0.0243	99% Percentile	0.0167
95% USL	0.017		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	14
Minimum	3.5000E-5	First Quartile	9.1000E-5
Second Largest	2.7000E-4	Median	1.1000E-4
Maximum	3.0000E-4	Third Quartile	1.5500E-4
Mean	1.2828E-4	SD	6.7434E-5

Coefficient of Variation	0.526	Skewness	1.462
Mean of logged Data	-9.078	SD of logged Data	0.496

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.845	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.273	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.9369E-4	90% Percentile (z)	2.1470E-4
	95% UPL (t)	2.4880E-4	95% Percentile (z)	2.3920E-4
	95% USL	2.9713E-4	99% Percentile (z)	2.8515E-4

Gamma GOF Test

A-D Test Statistic	0.612	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.229	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.46	k star (bias corrected MLE)	3.754
Theta hat (MLE)	2.8763E-5	Theta star (bias corrected MLE)	3.4175E-5
nu hat (MLE)	160.6	nu star (bias corrected)	135.1
MLE Mean (bias corrected)	1.2828E-4	MLE Sd (bias corrected)	6.6211E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.5924E-4	90% Percentile	2.1704E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.6246E-4	95% Percentile	2.5292E-4
95% WH Approx. Gamma UTL with	95% Coverage	3.3148E-4	99% Percentile	3.2978E-4
95% HW Approx. Gamma UTL with	95% Coverage	3.4116E-4		
	95% WH USL	3.3751E-4	95% HW USL	3.4784E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.197	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	3.8599E-4	90% Percentile (z)	2.1577E-4
	95% UPL (t)	2.7735E-4	95% Percentile (z)	2.5842E-4
	95% USL	3.9589E-4	99% Percentile (z)	3.6246E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	3.0000E-4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59

95% Percentile Bootstrap UTL with	95% Coverage	3.0000E-4	95% BCA Bootstrap UTL with	95% Coverage	3.0000E-4
	95% UPL	3.0000E-4		90% Percentile	2.0700E-4
	90% Chebyshev UPL	3.3612E-4		95% Percentile	2.7450E-4
	95% Chebyshev UPL	4.3027E-4		99% Percentile	2.9490E-4
	95% USL	3.0000E-4			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.015	Median	0.006
Maximum	0.017	Third Quartile	0.0089
Mean	0.00724	SD	0.0038
Coefficient of Variation	0.525	Skewness	1.432
Mean of logged Data	-5.046	SD of logged Data	0.502

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.852	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0166	90% Percentile (z)		0.0121
	95% UPL (t)	0.014	95% Percentile (z)		0.0135
	95% USL	0.0168	99% Percentile (z)		0.0161

Gamma GOF Test

A-D Test Statistic	0.58	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.203	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.407	k star (bias corrected MLE)	3.71
Theta hat (MLE)	0.00164	Theta star (bias corrected MLE)	0.00195
nu hat (MLE)	158.7	nu star (bias corrected)	133.5
MLE Mean (bias corrected)	0.00724	MLE Sd (bias corrected)	0.00376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0147	90% Percentile		0.0123
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0149	95% Percentile		0.0143
95% WH Approx. Gamma UTL with	95% Coverage	0.0188	99% Percentile		0.0187
95% HW Approx. Gamma UTL with	95% Coverage	0.0194			
	95% WH USL	0.0191	95% HW USL		0.0197

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.171	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0221	90% Percentile (z)	0.0122
	95% UPL (t)	0.0158	95% Percentile (z)	0.0147
	95% USL	0.0226	99% Percentile (z)	0.0207

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	0.017
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.017	95% BCA Bootstrap UTL with	95% Coverage	0.017
	95% UPL	0.017		90% Percentile	0.0115
	90% Chebyshev UPL	0.019		95% Percentile	0.0153
	95% Chebyshev UPL	0.0243		99% Percentile	0.0167
	95% USL	0.017			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_bmi_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	14
Minimum	9.2000E-4	First Quartile	0.0024
Second Largest	0.0071	Median	0.0028
Maximum	0.008	Third Quartile	0.00415
Mean	0.0034	SD	0.00179
Coefficient of Variation	0.527	Skewness	1.457
Mean of logged Data	-5.801	SD of logged Data	0.498

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.847	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.255	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0078	90% Percentile (z)	0.0057
	95% UPL (t)	0.0066	95% Percentile (z)	0.00635
	95% USL	0.00789	99% Percentile (z)	0.00757

Gamma GOF Test

A-D Test Statistic	0.592	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.206	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.433	k star (bias corrected MLE)	3.731
Theta hat (MLE)	7.6723E-4	Theta star (bias corrected MLE)	9.1154E-4
nu hat (MLE)	159.6	nu star (bias corrected)	134.3
MLE Mean (bias corrected)	0.0034	MLE Sd (bias corrected)	0.00176

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00689	90% Percentile	0.00576
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.00697	95% Percentile	0.00672
95% WH Approx. Gamma UTL with 95% Coverage	0.00881	99% Percentile	0.00876
95% HW Approx. Gamma UTL with 95% Coverage	0.00907		
95% WH USL	0.00897	95% HW USL	0.00925

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.945	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0103	90% Percentile (z)	0.00573
95% UPL (t)	0.00737	95% Percentile (z)	0.00687
95% USL	0.0105	99% Percentile (z)	0.00965

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.008
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.008	95% BCA Bootstrap UTL with 95% Coverage	0.008
95% UPL	0.008	90% Percentile	0.00542
90% Chebyshev UPL	0.00892	95% Percentile	0.00724
95% Chebyshev UPL	0.0114	99% Percentile	0.00785
95% USL	0.008		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0019	First Quartile	0.00513

Second Largest	0.015	Median	0.006
Maximum	0.017	Third Quartile	0.0089
Mean	0.00724	SD	0.0038
Coefficient of Variation	0.525	Skewness	1.432
Mean of logged Data	-5.046	SD of logged Data	0.502

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.852	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0166	90% Percentile (z)	0.0121
	95% UPL (t)	0.014	95% Percentile (z)	0.0135
	95% USL	0.0168	99% Percentile (z)	0.0161

Gamma GOF Test

A-D Test Statistic	0.58	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.203	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.407	k star (bias corrected MLE)	3.71
Theta hat (MLE)	0.00164	Theta star (bias corrected MLE)	0.00195
nu hat (MLE)	158.7	nu star (bias corrected)	133.5
MLE Mean (bias corrected)	0.00724	MLE Sd (bias corrected)	0.00376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0147	90% Percentile	0.0123
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0149	95% Percentile	0.0143
95% WH Approx. Gamma UTL with	95% Coverage	0.0188	99% Percentile	0.0187
95% HW Approx. Gamma UTL with	95% Coverage	0.0194		
	95% WH USL	0.0191	95% HW USL	0.0197

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.171	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0221	90% Percentile (z)	0.0122
	95% UPL (t)	0.0158	95% Percentile (z)	0.0147
	95% USL	0.0226	99% Percentile (z)	0.0207

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.017
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.017	95% BCA Bootstrap UTL with 95% Coverage	0.017
95% UPL	0.017	90% Percentile	0.0115
90% Chebyshev UPL	0.019	95% Percentile	0.0153
95% Chebyshev UPL	0.0243	99% Percentile	0.0167
95% USL	0.017		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	2.7000E-5	First Quartile	7.1250E-5
Second Largest	2.1000E-4	Median	8.4000E-5
Maximum	2.4000E-4	Third Quartile	1.2500E-4
Mean	1.0144E-4	SD	5.3711E-5
Coefficient of Variation	0.529	Skewness	1.441
Mean of logged Data	-9.315	SD of logged Data	0.503

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.851	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.258	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	2.3320E-4	90% Percentile (z)	1.7028E-4
95% UPL (t)	1.9744E-4	95% Percentile (z)	1.8979E-4
95% USL	2.3594E-4	99% Percentile (z)	2.2639E-4

Gamma GOF Test

A-D Test Statistic	0.585	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.209	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.367	k star (bias corrected MLE)	3.676
Theta hat (MLE)	2.3229E-5	Theta star (bias corrected MLE)	2.7594E-5
nu hat (MLE)	157.2	nu star (bias corrected)	132.3
MLE Mean (bias corrected)	1.0144E-4	MLE Sd (bias corrected)	5.2908E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.0625E-4	90% Percentile	1.7238E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.0894E-4	95% Percentile	2.0114E-4

95% WH Approx. Gamma UTL with	95% Coverage	2.6425E-4	99% Percentile	2.6283E-4
95% HW Approx. Gamma UTL with	95% Coverage	2.7224E-4		
	95% WH USL	2.6910E-4	95% HW USL	2.7762E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.947	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.176	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	3.0947E-4	90% Percentile (z)	1.7165E-4
	95% UPL (t)	2.2139E-4	95% Percentile (z)	2.0608E-4
	95% USL	3.1752E-4	99% Percentile (z)	2.9036E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with	95% Coverage	2.4000E-4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
		Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	2.4000E-4	95% BCA Bootstrap UTL with 95% Coverage	2.4000E-4
	95% UPL	2.4000E-4	90% Percentile	1.6100E-4
	90% Chebyshev UPL	2.6699E-4	95% Percentile	2.1450E-4
	95% Chebyshev UPL	3.4198E-4	99% Percentile	2.3490E-4
	95% USL	2.4000E-4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	15	Number of Non-Detects	3
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.244	Maximum Non-Detect	0.008
Variance Detected	0.00417	Percent Non-Detects	16.67%
Mean Detected	0.0435	SD Detected	0.0646
Mean of Detected Logged Data	-3.675	SD of Detected Logged Data	0.913

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.835	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.413	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.255	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0376	KM SD	0.0585
95% UTL95% Coverage	0.181	95% KM UPL (t)	0.142
90% KM Percentile (z)	0.112	95% KM Percentile (z)	0.134
99% KM Percentile (z)	0.174	95% KM USL	0.184

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0369	SD	0.0605
95% UTL95% Coverage	0.185	95% UPL (t)	0.145
90% Percentile (z)	0.114	95% Percentile (z)	0.136
99% Percentile (z)	0.178	95% USL	0.188

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.841	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.31	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.228	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.063	k star (bias corrected MLE)	0.895
Theta hat (MLE)	0.0409	Theta star (bias corrected MLE)	0.0486
nu hat (MLE)	31.88	nu star (bias corrected)	26.84
MLE Mean (bias corrected)	0.0435		
MLE Sd (bias corrected)	0.046	95% Percentile of Chisquare (2kstar)	5.576

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.009	Mean	0.0379
Maximum	0.244	Median	0.0195
SD	0.06	CV	1.583
k hat (MLE)	1.032	k star (bias corrected MLE)	0.897
Theta hat (MLE)	0.0367	Theta star (bias corrected MLE)	0.0422
nu hat (MLE)	37.17	nu star (bias corrected)	32.31
MLE Mean (bias corrected)	0.0379	MLE Sd (bias corrected)	0.04
95% Percentile of Chisquare (2kstar)	5.587	90% Percentile	0.0896
95% Percentile	0.118	99% Percentile	0.184

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.18	0.182	95% Approx. Gamma UPL	0.118	0.115
95% Gamma USL	0.185	0.188			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0376	SD (KM)	0.0585
Variance (KM)	0.00342	SE of Mean (KM)	0.0143
k hat (KM)	0.413	k star (KM)	0.381
nu hat (KM)	14.86	nu star (KM)	13.71
theta hat (KM)	0.091	theta star (KM)	0.0986
80% gamma percentile (KM)	0.0602	90% gamma percentile (KM)	0.107
95% gamma percentile (KM)	0.159	99% gamma percentile (KM)	0.289

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.175	0.177	95% Approx. Gamma UPL	0.115	0.112
95% KM Gamma Percentile	0.104	0.101	95% Gamma USL	0.18	0.183

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.901	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.217	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.202	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0368	Mean in Log Scale	-4.014
SD in Original Scale	0.0606	SD in Log Scale	1.144
95% UTL95% Coverage	0.299	95% BCA UTL95% Coverage	0.244
95% Bootstrap (%) UTL95% Coverage	0.244	95% UPL (t)	0.14
90% Percentile (z)	0.0782	95% Percentile (z)	0.119
99% Percentile (z)	0.258	95% USL	0.317

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.867	95% KM UTL (Lognormal)95% Coverage	0.196
KM SD of Logged Data	0.913	95% KM UPL (Lognormal)	0.107
95% KM Percentile Lognormal (z)	0.0938	95% KM USL (Lognormal)	0.206

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0369	Mean in Log Scale	-3.983
SD in Original Scale	0.0605	SD in Log Scale	1.09
95% UTL95% Coverage	0.27	95% UPL (t)	0.131
90% Percentile (z)	0.0753	95% Percentile (z)	0.112
99% Percentile (z)	0.235	95% USL	0.285

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.244
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.244
95% USL	0.244	95% KM Chebyshev UPL	0.299

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	15	Number of Non-Detects	3
Number of Distinct Detects	13	Number of Distinct Non-Detects	1

Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.244	Maximum Non-Detect	0.008
Variance Detected	0.00417	Percent Non-Detects	16.67%
Mean Detected	0.0435	SD Detected	0.0646
Mean of Detected Logged Data	-3.675	SD of Detected Logged Data	0.913

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.835	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.413	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.255	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0376	KM SD	0.0585
95% UTL95% Coverage	0.181	95% KM UPL (t)	0.142
90% KM Percentile (z)	0.112	95% KM Percentile (z)	0.134
99% KM Percentile (z)	0.174	95% KM USL	0.184

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0369	SD	0.0605
95% UTL95% Coverage	0.185	95% UPL (t)	0.145
90% Percentile (z)	0.114	95% Percentile (z)	0.136
99% Percentile (z)	0.178	95% USL	0.188

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.841	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.31	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.228	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.063	k star (bias corrected MLE)	0.895
Theta hat (MLE)	0.0409	Theta star (bias corrected MLE)	0.0486
nu hat (MLE)	31.88	nu star (bias corrected)	26.84
MLE Mean (bias corrected)	0.0435		
MLE Sd (bias corrected)	0.046	95% Percentile of Chisquare (2kstar)	5.576

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.009	Mean	0.0379
Maximum	0.244	Median	0.0195
SD	0.06	CV	1.583
k hat (MLE)	1.032	k star (bias corrected MLE)	0.897
Theta hat (MLE)	0.0367	Theta star (bias corrected MLE)	0.0422
nu hat (MLE)	37.17	nu star (bias corrected)	32.31
MLE Mean (bias corrected)	0.0379	MLE Sd (bias corrected)	0.04
95% Percentile of Chisquare (2kstar)	5.587	90% Percentile	0.0896

95% Percentile	0.118	99% Percentile	0.184

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.18	0.182	95% Approx. Gamma UPL	0.118	0.115
95% Gamma USL	0.185	0.188			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0376	SD (KM)	0.0585
Variance (KM)	0.00342	SE of Mean (KM)	0.0143
k hat (KM)	0.413	k star (KM)	0.381
nu hat (KM)	14.86	nu star (KM)	13.71
theta hat (KM)	0.091	theta star (KM)	0.0986
80% gamma percentile (KM)	0.0602	90% gamma percentile (KM)	0.107
95% gamma percentile (KM)	0.159	99% gamma percentile (KM)	0.289

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.175	0.177	95% Approx. Gamma UPL	0.115	0.112
95% KM Gamma Percentile	0.104	0.101	95% Gamma USL	0.18	0.183

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.901	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.217	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.202	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0368	Mean in Log Scale	-4.014
SD in Original Scale	0.0606	SD in Log Scale	1.144
95% UTL95% Coverage	0.299	95% BCA UTL95% Coverage	0.244
95% Bootstrap (%) UTL95% Coverage	0.244	95% UPL (t)	0.14
90% Percentile (z)	0.0782	95% Percentile (z)	0.119
99% Percentile (z)	0.258	95% USL	0.317

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.867	95% KM UTL (Lognormal)95% Coverage	0.196
KM SD of Logged Data	0.913	95% KM UPL (Lognormal)	0.107
95% KM Percentile Lognormal (z)	0.0938	95% KM USL (Lognormal)	0.206

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0369	Mean in Log Scale	-3.983
SD in Original Scale	0.0605	SD in Log Scale	1.09
95% UTL95% Coverage	0.27	95% UPL (t)	0.131
90% Percentile (z)	0.0753	95% Percentile (z)	0.112
99% Percentile (z)	0.235	95% USL	0.285

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.244
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.244

95% USL	0.244	95% KM Chebyshev UPL	0.299

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	15	Number of Non-Detects	3
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.244	Maximum Non-Detect	0.008
Variance Detected	0.00417	Percent Non-Detects	16.67%
Mean Detected	0.0435	SD Detected	0.0646
Mean of Detected Logged Data	-3.675	SD of Detected Logged Data	0.913

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.835	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.413	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.255	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0376	KM SD	0.0585
95% UTL95% Coverage	0.181	95% KM UPL (t)	0.142
90% KM Percentile (z)	0.112	95% KM Percentile (z)	0.134
99% KM Percentile (z)	0.174	95% KM USL	0.184

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0369	SD	0.0605
95% UTL95% Coverage	0.185	95% UPL (t)	0.145
90% Percentile (z)	0.114	95% Percentile (z)	0.136
99% Percentile (z)	0.178	95% USL	0.188

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.841	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.31	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.228	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.063	k star (bias corrected MLE)	0.895
Theta hat (MLE)	0.0409	Theta star (bias corrected MLE)	0.0486
nu hat (MLE)	31.88	nu star (bias corrected)	26.84
MLE Mean (bias corrected)	0.0435		
MLE Sd (bias corrected)	0.046	95% Percentile of Chisquare (2kstar)	5.576

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.009	Mean	0.0379
Maximum	0.244	Median	0.0195
SD	0.06	CV	1.583
k hat (MLE)	1.032	k star (bias corrected MLE)	0.897
Theta hat (MLE)	0.0367	Theta star (bias corrected MLE)	0.0422
nu hat (MLE)	37.17	nu star (bias corrected)	32.31
MLE Mean (bias corrected)	0.0379	MLE Sd (bias corrected)	0.04
95% Percentile of Chisquare (2kstar)	5.587	90% Percentile	0.0896
95% Percentile	0.118	99% Percentile	0.184

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.18	0.182	95% Approx. Gamma UPL	0.118	0.115
95% Gamma USL	0.185	0.188			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0376	SD (KM)	0.0585
Variance (KM)	0.00342	SE of Mean (KM)	0.0143
k hat (KM)	0.413	k star (KM)	0.381
nu hat (KM)	14.86	nu star (KM)	13.71
theta hat (KM)	0.091	theta star (KM)	0.0986
80% gamma percentile (KM)	0.0602	90% gamma percentile (KM)	0.107
95% gamma percentile (KM)	0.159	99% gamma percentile (KM)	0.289

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.175	0.177	95% Approx. Gamma UPL	0.115	0.112
95% KM Gamma Percentile	0.104	0.101	95% Gamma USL	0.18	0.183

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.901	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.217	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.202	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0368	Mean in Log Scale	-4.014
SD in Original Scale	0.0606	SD in Log Scale	1.144
95% UTL95% Coverage	0.299	95% BCA UTL95% Coverage	0.244
95% Bootstrap (%) UTL95% Coverage	0.244	95% UPL (t)	0.14
90% Percentile (z)	0.0782	95% Percentile (z)	0.119
99% Percentile (z)	0.258	95% USL	0.317

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.867	95% KM UTL (Lognormal)95% Coverage	0.196
KM SD of Logged Data	0.913	95% KM UPL (Lognormal)	0.107
95% KM Percentile Lognormal (z)	0.0938	95% KM USL (Lognormal)	0.206

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0369	Mean in Log Scale	-3.983
SD in Original Scale	0.0605	SD in Log Scale	1.09
95% UTL95% Coverage	0.27	95% UPL (t)	0.131
90% Percentile (z)	0.0753	95% Percentile (z)	0.112
99% Percentile (z)	0.235	95% USL	0.285

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.244
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.244
95% USL	0.244	95% KM Chebyshev UPL	0.299

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	0.009	First Quartile	0.0175
Second Largest	0.21	Median	0.0335
Maximum	0.44	Third Quartile	0.0498
Mean	0.0659	SD	0.104
Coefficient of Variation	1.579	Skewness	3.19
Mean of logged Data	-3.322	SD of logged Data	1.001

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.335	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.321	90% Percentile (z)	0.199
95% UPL (t)	0.252	95% Percentile (z)	0.237
95% USL	0.326	99% Percentile (z)	0.308

Gamma GOF Test

A-D Test Statistic	1.225	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.235	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.963	k star (bias corrected MLE)	0.84
Theta hat (MLE)	0.0684	Theta star (bias corrected MLE)	0.0785
nu hat (MLE)	34.67	nu star (bias corrected)	30.23
MLE Mean (bias corrected)	0.0659	MLE Sd (bias corrected)	0.0719

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.212	90% Percentile	0.158
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.21	95% Percentile	0.21
95% WH Approx. Gamma UTL with 95% Coverage	0.325	99% Percentile	0.332
95% HW Approx. Gamma UTL with 95% Coverage	0.336		
95% WH USL	0.335	95% HW USL	0.348

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.143	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.42	90% Percentile (z)	0.13
95% UPL (t)	0.216	95% Percentile (z)	0.187
95% USL	0.443	99% Percentile (z)	0.37

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.44
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.44	95% BCA Bootstrap UTL with 95% Coverage	0.44
95% UPL	0.44	90% Percentile	0.119
90% Chebyshev UPL	0.387	95% Percentile	0.245
95% Chebyshev UPL	0.532	99% Percentile	0.401
95% USL	0.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	14
Minimum	1.4000E-4	First Quartile	1.8500E-4
Second Largest	0.0026	Median	3.5000E-4
Maximum	0.0044	Third Quartile	4.6750E-4
Mean	6.7389E-4	SD	0.00108
Coefficient of Variation	1.608	Skewness	3.004
Mean of logged Data	-7.892	SD of logged Data	0.944

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.508	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.401	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.00333	90% Percentile (z)	0.00206
	95% UPL (t)	0.00261	95% Percentile (z)	0.00246
	95% USL	0.00339	99% Percentile (z)	0.0032

Gamma GOF Test

A-D Test Statistic	1.952	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.274	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.981	k star (bias corrected MLE)	0.854
Theta hat (MLE)	6.8724E-4	Theta star (bias corrected MLE)	7.8893E-4
nu hat (MLE)	35.3	nu star (bias corrected)	30.75
MLE Mean (bias corrected)	6.7389E-4	MLE Sd (bias corrected)	7.2914E-4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.00214	90% Percentile	0.00161
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.00209	95% Percentile	0.00214
95% WH Approx. Gamma UTL with	95% Coverage	0.00328	99% Percentile	0.00336
95% HW Approx. Gamma UTL with	95% Coverage	0.00333		
	95% WH USL	0.00338	95% HW USL	0.00345

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.843	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.00378	90% Percentile (z)	0.00125
	95% UPL (t)	0.00202	95% Percentile (z)	0.00176
	95% USL	0.00397	99% Percentile (z)	0.00336

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	0.0044
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.0044	95% BCA Bootstrap UTL with 95% Coverage	0.0044
	95% UPL	0.0044	90% Percentile	0.00123
	90% Chebyshev UPL	0.00401	95% Percentile	0.00287
	95% Chebyshev UPL	0.00553	99% Percentile	0.00409
	95% USL	0.0044		

Table C3-6
ProUCL Output for Porewater BTVs and BTV HQs, Approach C
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	0.009	First Quartile	0.0175
Second Largest	0.21	Median	0.0335
Maximum	0.44	Third Quartile	0.0498
Mean	0.0659	SD	0.104
Coefficient of Variation	1.579	Skewness	3.19
Mean of logged Data	-3.322	SD of logged Data	1.001

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.335	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.321	90% Percentile (z)	0.199
	95% UPL (t)	0.252	95% Percentile (z)	0.237
	95% USL	0.326	99% Percentile (z)	0.308

Gamma GOF Test

A-D Test Statistic	1.225	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.235	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.963	k star (bias corrected MLE)	0.84
Theta hat (MLE)	0.0684	Theta star (bias corrected MLE)	0.0785
nu hat (MLE)	34.67	nu star (bias corrected)	30.23
MLE Mean (bias corrected)	0.0659	MLE Sd (bias corrected)	0.0719

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.212	90% Percentile	0.158
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.21	95% Percentile	0.21
95% WH Approx. Gamma UTL with	95% Coverage	0.325	99% Percentile	0.332
95% HW Approx. Gamma UTL with	95% Coverage	0.336		
	95% WH USL	0.335	95% HW USL	0.348

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.143	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.42	90% Percentile (z)	0.13
	95% UPL (t)	0.216	95% Percentile (z)	0.187
	95% USL	0.443	99% Percentile (z)	0.37

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	18	95% UTL with 95% Coverage	0.44
	Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.44	95% BCA Bootstrap UTL with 95% Coverage	0.44
	95% UPL	0.44	90% Percentile	0.119
	90% Chebyshev UPL	0.387	95% Percentile	0.245
	95% Chebyshev UPL	0.532	99% Percentile	0.401
	95% USL	0.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	0.009	First Quartile	0.0175
Second Largest	0.21	Median	0.0335
Maximum	0.44	Third Quartile	0.0498
Mean	0.0659	SD	0.104
Coefficient of Variation	1.579	Skewness	3.19
Mean of logged Data	-3.322	SD of logged Data	1.001

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.335	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.321	90% Percentile (z)	0.199
	95% UPL (t)	0.252	95% Percentile (z)	0.237
	95% USL	0.326	99% Percentile (z)	0.308

Gamma GOF Test

A-D Test Statistic	1.225	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.235	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.963	k star (bias corrected MLE)	0.84
Theta hat (MLE)	0.0684	Theta star (bias corrected MLE)	0.0785
nu hat (MLE)	34.67	nu star (bias corrected)	30.23
MLE Mean (bias corrected)	0.0659	MLE Sd (bias corrected)	0.0719

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.212	90% Percentile	0.158
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.21	95% Percentile	0.21
95% WH Approx. Gamma UTL with 95% Coverage	0.325	99% Percentile	0.332
95% HW Approx. Gamma UTL with 95% Coverage	0.336		
95% WH USL	0.335	95% HW USL	0.348

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.143	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.42	90% Percentile (z)	0.13
95% UPL (t)	0.216	95% Percentile (z)	0.187
95% USL	0.443	99% Percentile (z)	0.37

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.44
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.44	95% BCA Bootstrap UTL with 95% Coverage	0.44
95% UPL	0.44	90% Percentile	0.119
90% Chebyshev UPL	0.387	95% Percentile	0.245
95% Chebyshev UPL	0.532	99% Percentile	0.401
95% USL	0.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	0.0012	First Quartile	0.00243
Second Largest	0.028	Median	0.00455
Maximum	0.06	Third Quartile	0.00698
Mean	0.00903	SD	0.0141
Coefficient of Variation	1.564	Skewness	3.208
Mean of logged Data	-5.301	SD of logged Data	0.999

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.54	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.333	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0437	90% Percentile (z)	0.0271
	95% UPL (t)	0.0343	95% Percentile (z)	0.0323
	95% USL	0.0444	99% Percentile (z)	0.0419

Gamma GOF Test

A-D Test Statistic	1.163	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.23	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.975	k star (bias corrected MLE)	0.849
Theta hat (MLE)	0.00926	Theta star (bias corrected MLE)	0.0106
nu hat (MLE)	35.1	nu star (bias corrected)	30.58
MLE Mean (bias corrected)	0.00903	MLE Sd (bias corrected)	0.0098

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0289	90% Percentile	0.0216
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0287	95% Percentile	0.0287
95% WH Approx. Gamma UTL with	95% Coverage	0.0444	99% Percentile	0.0452
95% HW Approx. Gamma UTL with	95% Coverage	0.0459		
	95% WH USL	0.0457	95% HW USL	0.0475

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.139	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0578	90% Percentile (z)	0.0179
	95% UPL (t)	0.0297	95% Percentile (z)	0.0258
	95% USL	0.0608	99% Percentile (z)	0.0509

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	0.06
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.06	95% BCA Bootstrap UTL with 95% Coverage	0.06
	95% UPL	0.06	90% Percentile	0.0161
	90% Chebyshev UPL	0.0526	95% Percentile	0.0328

95% Chebyshev UPL	0.0723	99% Percentile	0.0546
95% USL	0.06		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (calcium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	14000	First Quartile	18175
Second Largest	34000	Median	21150
Maximum	41000	Third Quartile	29275
Mean	24083	SD	7626
Coefficient of Variation	0.317	Skewness	0.643
Mean of logged Data	10.04	SD of logged Data	0.309

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.915	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.2	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	42791	90% Percentile (z)	33857
	95% UPL (t)	37714	95% Percentile (z)	36627
	95% USL	43180	99% Percentile (z)	41825

Gamma GOF Test

A-D Test Statistic	0.618	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.199	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.09	k star (bias corrected MLE)	9.278
Theta hat (MLE)	2172	Theta star (bias corrected MLE)	2596
nu hat (MLE)	399.2	nu star (bias corrected)	334
MLE Mean (bias corrected)	24083	MLE Sd (bias corrected)	7907

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	38979	90% Percentile	34608
95% Hawkins Wixley (HW) Approx. Gamma UPL	39201	95% Percentile	38390
95% WH Approx. Gamma UTL with 95% Coverage	46221	99% Percentile	46175
95% HW Approx. Gamma UTL with 95% Coverage	46844		
95% WH USL	46811	95% HW USL	47473

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk Lognormal GOF Test**

10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.187	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	49134	90% Percentile (z)	34199
	95% UPL (t)	39990	95% Percentile (z)	38266
	95% USL	49916	99% Percentile (z)	47246

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	18	95% UTL with 95% Coverage	41000
	Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	41000	95% BCA Bootstrap UTL with 95% Coverage	41000
	95% UPL	41000	90% Percentile	33090
	90% Chebyshev UPL	47589	95% Percentile	35050
	95% Chebyshev UPL	58236	99% Percentile	39810
	95% USL	41000		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (chloride_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
Minimum	0.16	First Quartile	0.328
Second Largest	4.58	Median	0.635
Maximum	5.4	Third Quartile	1.363
Mean	1.321	SD	1.616
Coefficient of Variation	1.223	Skewness	1.741
Mean of logged Data	-0.303	SD of logged Data	1.069

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.291	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.285	90% Percentile (z)	3.392
	95% UPL (t)	4.209	95% Percentile (z)	3.979
	95% USL	5.367	99% Percentile (z)	5.08

Gamma GOF Test

A-D Test Statistic	0.993	**Anderson-Darling Gamma GOF Test**

5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.221	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.209	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.994	k star (bias corrected MLE)	0.865
Theta hat (MLE)	1.329	Theta star (bias corrected MLE)	1.527
nu hat (MLE)	35.78	nu star (bias corrected)	31.15
MLE Mean (bias corrected)	1.321	MLE Sd (bias corrected)	1.42

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4.334	90% Percentile	3.152
95% Hawkins Wixley (HW) Approx. Gamma UPL	4.423	95% Percentile	4.167
95% WH Approx. Gamma UTL with 95% Coverage	6.635	99% Percentile	6.549
95% HW Approx. Gamma UTL with 95% Coverage	7.106		
95% WH USL	6.839	95% HW USL	7.353

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.159	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	10.16	90% Percentile (z)	2.906
95% UPL (t)	4.989	95% Percentile (z)	4.285
95% USL	10.73	99% Percentile (z)	8.876

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	5.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.4	95% BCA Bootstrap UTL with 95% Coverage	5.4
95% UPL	5.4	90% Percentile	4.118
90% Chebyshev UPL	6.302	95% Percentile	4.703
95% Chebyshev UPL	8.558	99% Percentile	5.261
95% USL	5.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	1	Number of Non-Detects	17
Number of Distinct Detects	1	Number of Distinct Non-Detects	17
Minimum Detect	3.86	Minimum Non-Detect	0.08

Maximum Detect	3.86	Maximum Non-Detect	1.56
Variance Detected	N/A	Percent Non-Detects	94.44%
Mean Detected	3.86	SD Detected	N/A
Mean of Detected Logged Data	1.351	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_aquatic plants_awqc) was not processed!

concDL (copper_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	1	Number of Non-Detects	17
Number of Distinct Detects	1	Number of Distinct Non-Detects	17
Minimum Detect	3.86	Minimum Non-Detect	0.08
Maximum Detect	3.86	Maximum Non-Detect	1.56
Variance Detected	N/A	Percent Non-Detects	94.44%
Mean Detected	3.86	SD Detected	N/A
Mean of Detected Logged Data	1.351	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_bmi_awqc) was not processed!

concDL (copper_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	1	Number of Non-Detects	17
Number of Distinct Detects	1	Number of Distinct Non-Detects	17
Minimum Detect	3.86	Minimum Non-Detect	0.08
Maximum Detect	3.86	Maximum Non-Detect	1.56
Variance Detected	N/A	Percent Non-Detects	94.44%
Mean Detected	3.86	SD Detected	N/A
Mean of Detected Logged Data	1.351	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_fish_awqc) was not processed!

concDL (copper_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.036	First Quartile	0.37
Second Largest	4.3	Median	0.645
Maximum	7.4	Third Quartile	1.275
Mean	1.285	SD	1.808

Coefficient of Variation	1.407	Skewness	2.771
Mean of logged Data	-0.445	SD of logged Data	1.291

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.625	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.32	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.719	90% Percentile (z)	3.601
	95% UPL (t)	4.515	95% Percentile (z)	4.258
	95% USL	5.811	99% Percentile (z)	5.49

Gamma GOF Test

A-D Test Statistic	0.49	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.774	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.173	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.847	k star (bias corrected MLE)	0.743
Theta hat (MLE)	1.517	Theta star (bias corrected MLE)	1.729
nu hat (MLE)	30.5	nu star (bias corrected)	26.75
MLE Mean (bias corrected)	1.285	MLE Sd (bias corrected)	1.49

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		4.406	90% Percentile	3.18
95% Hawkins Wixley (HW) Approx. Gamma UPL		4.593	95% Percentile	4.28
95% WH Approx. Gamma UTL with	95% Coverage	6.869	99% Percentile	6.893
95% HW Approx. Gamma UTL with	95% Coverage	7.59		
	95% WH USL	7.088	95% HW USL	7.868

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.965	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.128	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	15.21	90% Percentile (z)	3.353
	95% UPL (t)	6.441	95% Percentile (z)	5.359
	95% USL	16.25	99% Percentile (z)	12.92

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	7.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59

95% Percentile Bootstrap UTL with	95% Coverage	7.4	95% BCA Bootstrap UTL with	95% Coverage	7.4
	95% UPL	7.4		90% Percentile	2.41
	90% Chebyshev UPL	6.856		95% Percentile	4.765
	95% Chebyshev UPL	9.38		99% Percentile	6.873
	95% USL	7.4			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.036	First Quartile	0.37
Second Largest	4.3	Median	0.645
Maximum	7.4	Third Quartile	1.275
Mean	1.285	SD	1.808
Coefficient of Variation	1.407	Skewness	2.771
Mean of logged Data	-0.445	SD of logged Data	1.291

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.625	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.32	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.719	90% Percentile (z)	3.601
	95% UPL (t)	4.515	95% Percentile (z)	4.258
	95% USL	5.811	99% Percentile (z)	5.49

Gamma GOF Test

A-D Test Statistic	0.49	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.774	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.173	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.847	k star (bias corrected MLE)	0.743
Theta hat (MLE)	1.517	Theta star (bias corrected MLE)	1.729
nu hat (MLE)	30.5	nu star (bias corrected)	26.75
MLE Mean (bias corrected)	1.285	MLE Sd (bias corrected)	1.49

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		4.406	90% Percentile	3.18
95% Hawkins Wixley (HW) Approx. Gamma UPL		4.593	95% Percentile	4.28
95% WH Approx. Gamma UTL with	95% Coverage	6.869	99% Percentile	6.893
95% HW Approx. Gamma UTL with	95% Coverage	7.59		
	95% WH USL	7.088	95% HW USL	7.868

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.965	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.128	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	15.21	90% Percentile (z)	3.353
	95% UPL (t)	6.441	95% Percentile (z)	5.359
	95% USL	16.25	99% Percentile (z)	12.92

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	18	95% UTL with	95% Coverage	7.4
	Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	7.4	95% BCA Bootstrap UTL with	95% Coverage	7.4
	95% UPL	7.4		90% Percentile	2.41
	90% Chebyshev UPL	6.856		95% Percentile	4.765
	95% Chebyshev UPL	9.38		99% Percentile	6.873
	95% USL	7.4			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.036	First Quartile	0.37
Second Largest	4.3	Median	0.645
Maximum	7.4	Third Quartile	1.275
Mean	1.285	SD	1.808
Coefficient of Variation	1.407	Skewness	2.771
Mean of logged Data	-0.445	SD of logged Data	1.291

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.625	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.32	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.719	90% Percentile (z)	3.601
	95% UPL (t)	4.515	95% Percentile (z)	4.258
	95% USL	5.811	99% Percentile (z)	5.49

Gamma GOF Test

A-D Test Statistic	0.49	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.774	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.173	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.847	k star (bias corrected MLE)	0.743
Theta hat (MLE)	1.517	Theta star (bias corrected MLE)	1.729
nu hat (MLE)	30.5	nu star (bias corrected)	26.75
MLE Mean (bias corrected)	1.285	MLE Sd (bias corrected)	1.49

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4.406	90% Percentile	3.18
95% Hawkins Wixley (HW) Approx. Gamma UPL	4.593	95% Percentile	4.28
95% WH Approx. Gamma UTL with 95% Coverage	6.869	99% Percentile	6.893
95% HW Approx. Gamma UTL with 95% Coverage	7.59		
95% WH USL	7.088	95% HW USL	7.868

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.965	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.128	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	15.21	90% Percentile (z)	3.353
95% UPL (t)	6.441	95% Percentile (z)	5.359
95% USL	16.25	99% Percentile (z)	12.92

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	7.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7.4	95% BCA Bootstrap UTL with 95% Coverage	7.4
95% UPL	7.4	90% Percentile	2.41
90% Chebyshev UPL	6.856	95% Percentile	4.765
95% Chebyshev UPL	9.38	99% Percentile	6.873
95% USL	7.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
Minimum	0.0044	First Quartile	0.0478

Second Largest	0.25	Median	0.0815
Maximum	0.77	Third Quartile	0.128
Mean	0.126	SD	0.172
Coefficient of Variation	1.364	Skewness	3.412
Mean of logged Data	-2.635	SD of logged Data	1.157

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.576	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.311	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.548	90% Percentile (z)	0.347
	95% UPL (t)	0.434	95% Percentile (z)	0.409
	95% USL	0.557	99% Percentile (z)	0.526

Gamma GOF Test

A-D Test Statistic	0.509	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.766	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.17	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.209	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.021	k star (bias corrected MLE)	0.887
Theta hat (MLE)	0.124	Theta star (bias corrected MLE)	0.142
nu hat (MLE)	36.74	nu star (bias corrected)	31.95
MLE Mean (bias corrected)	0.126	MLE Sd (bias corrected)	0.134

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.404	90% Percentile	0.299
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.419	95% Percentile	0.394
95% WH Approx. Gamma UTL with	95% Coverage	0.613	99% Percentile	0.617
95% HW Approx. Gamma UTL with	95% Coverage	0.669		
	95% WH USL	0.632	95% HW USL	0.692

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.948	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.138	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.225	90% Percentile (z)	0.316
	95% UPL (t)	0.567	95% Percentile (z)	0.481
	95% USL	1.299	99% Percentile (z)	1.058

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.77
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.77	95% BCA Bootstrap UTL with 95% Coverage	0.77
95% UPL	0.77	90% Percentile	0.187
90% Chebyshev UPL	0.656	95% Percentile	0.328
95% Chebyshev UPL	0.896	99% Percentile	0.682
95% USL	0.77		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
Minimum	0.067	First Quartile	0.668
Second Largest	9.1	Median	1.15
Maximum	14	Third Quartile	2.2
Mean	2.448	SD	3.539
Coefficient of Variation	1.445	Skewness	2.645
Mean of logged Data	0.155	SD of logged Data	1.319

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.623	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.306	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	11.13	90% Percentile (z)	6.983
95% UPL (t)	8.773	95% Percentile (z)	8.269
95% USL	11.31	99% Percentile (z)	10.68

Gamma GOF Test

A-D Test Statistic	0.536	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.776	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.165	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.802	k star (bias corrected MLE)	0.705
Theta hat (MLE)	3.053	Theta star (bias corrected MLE)	3.472
nu hat (MLE)	28.86	nu star (bias corrected)	25.39
MLE Mean (bias corrected)	2.448	MLE Sd (bias corrected)	2.915

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	8.538	90% Percentile	6.135
95% Hawkins Wixley (HW) Approx. Gamma UPL	8.882	95% Percentile	8.311

95% WH Approx. Gamma UTL with	95% Coverage	13.43		99% Percentile	13.5
95% HW Approx. Gamma UTL with	95% Coverage	14.83			
	95% WH USL	13.86		95% HW USL	15.38

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.971	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.12	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	29.67		90% Percentile (z)	6.331
	95% UPL (t)	12.33		95% Percentile (z)	10.22
	95% USL	31.74		99% Percentile (z)	25.11

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	18	95% UTL with	95% Coverage	14
	Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	14	95% BCA Bootstrap UTL with	95% Coverage	14
	95% UPL	14		90% Percentile	4.97
	90% Chebyshev UPL	13.36		95% Percentile	9.835
	95% Chebyshev UPL	18.3		99% Percentile	13.17
	95% USL	14			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (doc_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	17	Number of Non-Detects	1
Number of Distinct Detects	16	Number of Distinct Non-Detects	1
Minimum Detect	0.28	Minimum Non-Detect	0.07
Maximum Detect	3.05	Maximum Non-Detect	0.07
Variance Detected	0.536	Percent Non-Detects	5.556%
Mean Detected	0.964	SD Detected	0.732
Mean of Detected Logged Data	-0.266	SD of Detected Logged Data	0.681

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.819	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.235	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.914	KM SD	0.72
95% UTL95% Coverage	2.681	95% KM UPL (t)	2.201
90% KM Percentile (z)	1.837	95% KM Percentile (z)	2.099
99% KM Percentile (z)	2.589	95% KM USL	2.717

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.912	SD	0.743
95% UTL95% Coverage	2.736	95% UPL (t)	2.241
90% Percentile (z)	1.865	95% Percentile (z)	2.135
99% Percentile (z)	2.642	95% USL	2.774

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.491	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.748	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.153	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.335	k star (bias corrected MLE)	1.962
Theta hat (MLE)	0.413	Theta star (bias corrected MLE)	0.491
nu hat (MLE)	79.38	nu star (bias corrected)	66.7
MLE Mean (bias corrected)	0.964		
MLE Sd (bias corrected)	0.688	95% Percentile of Chisquare (2kstar)	9.364

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.911
Maximum	3.05	Median	0.693
SD	0.745	CV	0.818
k hat (MLE)	1.351	k star (bias corrected MLE)	1.163
Theta hat (MLE)	0.674	Theta star (bias corrected MLE)	0.783
nu hat (MLE)	48.63	nu star (bias corrected)	41.86
MLE Mean (bias corrected)	0.911	MLE Sd (bias corrected)	0.845
95% Percentile of Chisquare (2kstar)	6.608	90% Percentile	2.021
95% Percentile	2.588	99% Percentile	3.892

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.883	4.46	95% Approx. Gamma UPL	2.679	2.916
95% Gamma USL	3.987	4.6			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.914	SD (KM)	0.72
Variance (KM)	0.519	SE of Mean (KM)	0.175
k hat (KM)	1.611	k star (KM)	1.38
nu hat (KM)	58.01	nu star (KM)	49.68
theta hat (KM)	0.567	theta star (KM)	0.662
80% gamma percentile (KM)	1.427	90% gamma percentile (KM)	1.944
95% gamma percentile (KM)	2.449	99% gamma percentile (KM)	3.596

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.385	3.637	95% Approx. Gamma UPL	2.41	2.498
95% KM Gamma Percentile	2.229	2.294	95% Gamma USL	3.469	3.738

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.957	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.91	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.116	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.19	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.918	Mean in Log Scale	-0.36
SD in Original Scale	0.736	SD in Log Scale	0.771
95% UTL95% Coverage	4.621	95% BCA UTL95% Coverage	3.05
95% Bootstrap (%) UTL95% Coverage	3.05	95% UPL (t)	2.767
90% Percentile (z)	1.874	95% Percentile (z)	2.479
99% Percentile (z)	4.191	95% USL	4.806

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.399	95% KM UTL (Lognormal)95% Coverage	5.322
KM SD of Logged Data	0.844	95% KM UPL (Lognormal)	3.034
95% KM Percentile Lognormal (z)	2.69	95% KM USL (Lognormal)	5.557

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.912	Mean in Log Scale	-0.438
SD in Original Scale	0.743	SD in Log Scale	0.983
95% UTL95% Coverage	7.192	95% UPL (t)	3.739
90% Percentile (z)	2.275	95% Percentile (z)	3.251
99% Percentile (z)	6.351	95% USL	7.562

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	3.05
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3.05
95% USL	3.05	95% KM Chebyshev UPL	4.139

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (hardness_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	47	First Quartile	58.78
Second Largest	112	Median	68.05
Maximum	133	Third Quartile	96.63

Mean	78.48	SD	24.68
Coefficient of Variation	0.314	Skewness	0.691
Mean of logged Data	4.318	SD of logged Data	0.304

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.905	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.228	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	139	90% Percentile (z)	110.1
	95% UPL (t)	122.6	95% Percentile (z)	119.1
	95% USL	140.3	99% Percentile (z)	135.9

Gamma GOF Test

A-D Test Statistic	0.69	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.222	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.37	k star (bias corrected MLE)	9.516
Theta hat (MLE)	6.9	Theta star (bias corrected MLE)	8.248
nu hat (MLE)	409.5	nu star (bias corrected)	342.6
MLE Mean (bias corrected)	78.48	MLE Sd (bias corrected)	25.44

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	126.3	90% Percentile	112.3
95% Hawkins Wixley (HW) Approx. Gamma UPL	127	95% Percentile	124.5
95% WH Approx. Gamma UTL with 95% Coverage	149.6	99% Percentile	149.4
95% HW Approx. Gamma UTL with 95% Coverage	151.4		
95% WH USL	151.4	95% HW USL	153.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.209	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	158.3	90% Percentile (z)	110.9
	95% UPL (t)	129.3	95% Percentile (z)	123.8
	95% USL	160.8	99% Percentile (z)	152.4

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with	95% Coverage	133
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603

		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	133	95% BCA Bootstrap UTL with 95% Coverage	133
95% UPL	133	90% Percentile	107.8
90% Chebyshev UPL	154.5	95% Percentile	115.2
95% Chebyshev UPL	189	99% Percentile	129.4
95% USL	133		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	11
Minimum Detect	192	Minimum Non-Detect	8
Maximum Detect	5500	Maximum Non-Detect	100
Variance Detected	4662667	Percent Non-Detects	66.67%
Mean Detected	1761	SD Detected	2159
Mean of Detected Logged Data	6.751	SD of Detected Logged Data	1.35

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.787	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.323	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	592.4	KM SD	1407
95% UTL95% Coverage	4043	95% KM UPL (t)	3106
90% KM Percentile (z)	2395	95% KM Percentile (z)	2906
99% KM Percentile (z)	3865	95% KM USL	4114

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	596.8	SD	1446
95% UTL95% Coverage	4143	95% UPL (t)	3180
90% Percentile (z)	2449	95% Percentile (z)	2974
99% Percentile (z)	3960	95% USL	4216

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.414	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.719	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.233	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.343	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.819	k star (bias corrected MLE)	0.521
Theta hat (MLE)	2151	Theta star (bias corrected MLE)	3384
nu hat (MLE)	9.827	nu star (bias corrected)	6.247
MLE Mean (bias corrected)	1761		
MLE Sd (bias corrected)	2441	95% Percentile of Chisquare (2kstar)	3.942

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	587.1
Maximum	5500	Median	0.01
SD	1450	CV	2.469
k hat (MLE)	0.111	k star (bias corrected MLE)	0.13
Theta hat (MLE)	5274	Theta star (bias corrected MLE)	4523
nu hat (MLE)	4.008	nu star (bias corrected)	4.673
MLE Mean (bias corrected)	587.1	MLE Sd (bias corrected)	1630
95% Percentile of Chisquare (2kstar)	1.465	90% Percentile	1696
95% Percentile	3314	99% Percentile	8158

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5134	6573	95% Approx. Gamma UPL	2485	2586
95% Gamma USL	5392	7002			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	592.4	SD (KM)	1407
Variance (KM)	1978336	SE of Mean (KM)	363.2
k hat (KM)	0.177	k star (KM)	0.185
nu hat (KM)	6.387	nu star (KM)	6.656
theta hat (KM)	3339	theta star (KM)	3204
80% gamma percentile (KM)	747.1	90% gamma percentile (KM)	1789
95% gamma percentile (KM)	3114	99% gamma percentile (KM)	6810

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4311	4734	95% Approx. Gamma UPL	2277	2217
95% KM Gamma Percentile	1948	1846	95% Gamma USL	4504	4990

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.925	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.826	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.18	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	592.2	Mean in Log Scale	3.549
SD in Original Scale	1447	SD in Log Scale	2.467
95% UTL95% Coverage	14785	95% BCA UTL95% Coverage	5500
95% Bootstrap (%) UTL95% Coverage	5500	95% UPL (t)	2861
90% Percentile (z)	821.6	95% Percentile (z)	2013
99% Percentile (z)	10817	95% USL	16768

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.637	95% KM UTL (Lognormal)95% Coverage	11091
KM SD of Logged Data	2.314	95% KM UPL (Lognormal)	2376
95% KM Percentile Lognormal (z)	1709	95% KM USL (Lognormal)	12481

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	596.8	Mean in Log Scale	3.815
SD in Original Scale	1446	SD in Log Scale	2.354
95% UTL95% Coverage	14612	95% UPL (t)	3048
90% Percentile (z)	926.9	95% Percentile (z)	2180
99% Percentile (z)	10844	95% USL	16476

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	5500
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5500
95% USL	5500	95% KM Chebyshev UPL	6891

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	11
Minimum Detect	192	Minimum Non-Detect	8
Maximum Detect	5500	Maximum Non-Detect	100
Variance Detected	4662667	Percent Non-Detects	66.67%
Mean Detected	1761	SD Detected	2159
Mean of Detected Logged Data	6.751	SD of Detected Logged Data	1.35

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.787	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.323	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	592.4	KM SD	1407
95% UTL95% Coverage	4043	95% KM UPL (t)	3106
90% KM Percentile (z)	2395	95% KM Percentile (z)	2906
99% KM Percentile (z)	3865	95% KM USL	4114

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	596.8	SD	1446
95% UTL95% Coverage	4143	95% UPL (t)	3180
90% Percentile (z)	2449	95% Percentile (z)	2974
99% Percentile (z)	3960	95% USL	4216

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.414	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.719	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.233	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.343	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.819	k star (bias corrected MLE)	0.521
Theta hat (MLE)	2151	Theta star (bias corrected MLE)	3384
nu hat (MLE)	9.827	nu star (bias corrected)	6.247
MLE Mean (bias corrected)	1761		
MLE Sd (bias corrected)	2441	95% Percentile of Chisquare (2kstar)	3.942

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	587.1
Maximum	5500	Median	0.01
SD	1450	CV	2.469
k hat (MLE)	0.111	k star (bias corrected MLE)	0.13
Theta hat (MLE)	5274	Theta star (bias corrected MLE)	4523
nu hat (MLE)	4.008	nu star (bias corrected)	4.673
MLE Mean (bias corrected)	587.1	MLE Sd (bias corrected)	1630
95% Percentile of Chisquare (2kstar)	1.465	90% Percentile	1696
95% Percentile	3314	99% Percentile	8158

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5134	6573	95% Approx. Gamma UPL	2485	2586
95% Gamma USL	5392	7002			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	592.4	SD (KM)	1407
Variance (KM)	1978336	SE of Mean (KM)	363.2
k hat (KM)	0.177	k star (KM)	0.185
nu hat (KM)	6.387	nu star (KM)	6.656
theta hat (KM)	3339	theta star (KM)	3204
80% gamma percentile (KM)	747.1	90% gamma percentile (KM)	1789
95% gamma percentile (KM)	3114	99% gamma percentile (KM)	6810

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4311	4734	95% Approx. Gamma UPL	2277	2217
95% KM Gamma Percentile	1948	1846	95% Gamma USL	4504	4990

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.925	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.826	Detected Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.18	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level	

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	592.2	Mean in Log Scale	3.549
SD in Original Scale	1447	SD in Log Scale	2.467
95% UTL95% Coverage	14785	95% BCA UTL95% Coverage	5500
95% Bootstrap (%) UTL95% Coverage	5500	95% UPL (t)	2861
90% Percentile (z)	821.6	95% Percentile (z)	2013
99% Percentile (z)	10817	95% USL	16768

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.637	95% KM UTL (Lognormal)95% Coverage	11091
KM SD of Logged Data	2.314	95% KM UPL (Lognormal)	2376
95% KM Percentile Lognormal (z)	1709	95% KM USL (Lognormal)	12481

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	596.8	Mean in Log Scale	3.815
SD in Original Scale	1446	SD in Log Scale	2.354
95% UTL95% Coverage	14612	95% UPL (t)	3048
90% Percentile (z)	926.9	95% Percentile (z)	2180
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DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

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Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5500
95% USL	5500	95% KM Chebyshev UPL	6891

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concDL (iron_ug/l_concentration_fish_awqc)

General Statistics

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SD in Original Scale	1447	SD in Log Scale	2.467
95% UTL95% Coverage	14785	95% BCA UTL95% Coverage	5500
95% Bootstrap (%) UTL95% Coverage	5500	95% UPL (t)	2861
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KM Mean of Logged Data	3.637	95% KM UTL (Lognormal)95% Coverage	11091
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Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	596.8	Mean in Log Scale	3.815
SD in Original Scale	1446	SD in Log Scale	2.354
95% UTL95% Coverage	14612	95% UPL (t)	3048
90% Percentile (z)	926.9	95% Percentile (z)	2180
99% Percentile (z)	10844	95% USL	16476

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Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	5500
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5500
95% USL	5500	95% KM Chebyshev UPL	6891

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.008	First Quartile	0.0133
Second Largest	3.2	Median	0.04
Maximum	5.5	Third Quartile	0.258
Mean	0.603	SD	1.436
Coefficient of Variation	2.381	Skewness	2.961
Mean of logged Data	-2.633	SD of logged Data	2.051

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.481	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.376	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.126	90% Percentile (z)	2.444
	95% UPL (t)	3.17	95% Percentile (z)	2.966
	95% USL	4.2	99% Percentile (z)	3.944

Gamma GOF Test

A-D Test Statistic	1.69	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.838	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.262	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.321	k star (bias corrected MLE)	0.304
Theta hat (MLE)	1.882	Theta star (bias corrected MLE)	1.983
nu hat (MLE)	11.54	nu star (bias corrected)	10.95
MLE Mean (bias corrected)	0.603	MLE Sd (bias corrected)	1.094

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.416	90% Percentile	1.776
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.381	95% Percentile	2.747
95% WH Approx. Gamma UTL with	95% Coverage	4.431	99% Percentile	5.266
95% HW Approx. Gamma UTL with	95% Coverage	4.843		
	95% WH USL	4.62	95% HW USL	5.089

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.893	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	11	90% Percentile (z)	0.995
	95% UPL (t)	2.809	95% Percentile (z)	2.097

95% USL	12.22	99% Percentile (z)	8.487

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	5.5
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.5	95% BCA Bootstrap UTL with 95% Coverage	5.5
95% UPL	5.5	90% Percentile	1.583
90% Chebyshev UPL	5.03	95% Percentile	3.545
95% Chebyshev UPL	7.035	99% Percentile	5.109
95% USL	5.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	6.7000E-4	First Quartile	0.00112
Second Largest	0.27	Median	0.00335
Maximum	0.46	Third Quartile	0.022
Mean	0.0506	SD	0.12
Coefficient of Variation	2.378	Skewness	2.952
Mean of logged Data	-5.115	SD of logged Data	2.055

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.481	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.375	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.346	90% Percentile (z)	0.205
95% UPL (t)	0.266	95% Percentile (z)	0.249
95% USL	0.352	99% Percentile (z)	0.331

Gamma GOF Test

A-D Test Statistic	1.691	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.838	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.263	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.22	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.32	k star (bias corrected MLE)	0.304
Theta hat (MLE)	0.158	Theta star (bias corrected MLE)	0.167

nu hat (MLE)	11.52	nu star (bias corrected)	10.94
MLE Mean (bias corrected)	0.0506	MLE Sd (bias corrected)	0.0918

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.203	90% Percentile	0.149
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.2	95% Percentile	0.231
95% WH Approx. Gamma UTL with 95% Coverage	0.372	99% Percentile	0.442
95% HW Approx. Gamma UTL with 95% Coverage	0.407		
95% WH USL	0.388	95% HW USL	0.428

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.892	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.18	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.928	90% Percentile (z)	0.0836
95% UPL (t)	0.236	95% Percentile (z)	0.176
95% USL	1.03	99% Percentile (z)	0.715

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.46
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.46	95% BCA Bootstrap UTL with 95% Coverage	0.46
95% UPL	0.46	90% Percentile	0.133
90% Chebyshev UPL	0.422	95% Percentile	0.299
95% Chebyshev UPL	0.59	99% Percentile	0.428
95% USL	0.46		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.008	First Quartile	0.0133
Second Largest	3.2	Median	0.04
Maximum	5.5	Third Quartile	0.258
Mean	0.603	SD	1.436
Coefficient of Variation	2.381	Skewness	2.961
Mean of logged Data	-2.633	SD of logged Data	2.051

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.481	**Shapiro Wilk GOF Test**	

1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.376	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.126	90% Percentile (z)	2.444
	95% UPL (t)	3.17	95% Percentile (z)	2.966
	95% USL	4.2	99% Percentile (z)	3.944

Gamma GOF Test

A-D Test Statistic	1.69	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.838	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.262	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.321	k star (bias corrected MLE)	0.304
Theta hat (MLE)	1.882	Theta star (bias corrected MLE)	1.983
nu hat (MLE)	11.54	nu star (bias corrected)	10.95
MLE Mean (bias corrected)	0.603	MLE Sd (bias corrected)	1.094

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.416	90% Percentile	1.776
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.381	95% Percentile	2.747
95% WH Approx. Gamma UTL with	95% Coverage	4.431	99% Percentile	5.266
95% HW Approx. Gamma UTL with	95% Coverage	4.843		
	95% WH USL	4.62	95% HW USL	5.089

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.893	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	11	90% Percentile (z)	0.995
	95% UPL (t)	2.809	95% Percentile (z)	2.097
	95% USL	12.22	99% Percentile (z)	8.487

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	5.5
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	5.5	95% BCA Bootstrap UTL with 95% Coverage	5.5
	95% UPL	5.5	90% Percentile	1.583
	90% Chebyshev UPL	5.03	95% Percentile	3.545
	95% Chebyshev UPL	7.035	99% Percentile	5.109
	95% USL	5.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers

and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_bmi_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.021	First Quartile	0.0358
Second Largest	4.2	Median	0.068
Maximum	6.5	Third Quartile	0.355
Mean	0.826	SD	1.744
Coefficient of Variation	2.112	Skewness	2.694
Mean of logged Data	-1.936	SD of logged Data	1.86

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.533	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.376	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.104	90% Percentile (z)	3.061
	95% UPL (t)	3.943	95% Percentile (z)	3.695
	95% USL	5.193	99% Percentile (z)	4.883

Gamma GOF Test

A-D Test Statistic	1.609	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.825	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.243	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.219	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.38	k star (bias corrected MLE)	0.354
Theta hat (MLE)	2.172	Theta star (bias corrected MLE)	2.333
nu hat (MLE)	13.69	nu star (bias corrected)	12.74
MLE Mean (bias corrected)	0.826	MLE Sd (bias corrected)	1.388

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		3.341	90% Percentile	2.381
95% Hawkins Wixley (HW) Approx. Gamma UPL		3.354	95% Percentile	3.578
95% WH Approx. Gamma UTL with	95% Coverage	5.953	99% Percentile	6.628
95% HW Approx. Gamma UTL with	95% Coverage	6.563		
	95% WH USL	6.196	95% HW USL	6.879

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.879	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.212	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Table C3-6
ProUCL Output for Porewater BTVs and BTV HQs, Approach C
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	13.82	90% Percentile (z)	1.564
	95% UPL (t)	4.008	95% Percentile (z)	3.075
	95% USL	15.2	99% Percentile (z)	10.92

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with	95% Coverage	6.5
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
		Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	6.5	95% BCA Bootstrap UTL with 95% Coverage	6.5
	95% UPL	6.5	90% Percentile	2.38
	90% Chebyshev UPL	6.201	95% Percentile	4.545
	95% Chebyshev UPL	8.636	99% Percentile	6.109
	95% USL	6.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.008	First Quartile	0.0133
Second Largest	3.2	Median	0.04
Maximum	5.5	Third Quartile	0.258
Mean	0.603	SD	1.436
Coefficient of Variation	2.381	Skewness	2.961
Mean of logged Data	-2.633	SD of logged Data	2.051

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.481	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.376	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.126	90% Percentile (z)	2.444
	95% UPL (t)	3.17	95% Percentile (z)	2.966
	95% USL	4.2	99% Percentile (z)	3.944

Gamma GOF Test

A-D Test Statistic	1.69	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.838	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.262	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.321	k star (bias corrected MLE)	0.304
Theta hat (MLE)	1.882	Theta star (bias corrected MLE)	1.983
nu hat (MLE)	11.54	nu star (bias corrected)	10.95
MLE Mean (bias corrected)	0.603	MLE Sd (bias corrected)	1.094

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.416	90% Percentile	1.776
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.381	95% Percentile	2.747
95% WH Approx. Gamma UTL with 95% Coverage	4.431	99% Percentile	5.266
95% HW Approx. Gamma UTL with 95% Coverage	4.843		
95% WH USL	4.62	95% HW USL	5.089

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.893	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	11	90% Percentile (z)	0.995
95% UPL (t)	2.809	95% Percentile (z)	2.097
95% USL	12.22	99% Percentile (z)	8.487

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	5.5
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.5	95% BCA Bootstrap UTL with 95% Coverage	5.5
95% UPL	5.5	90% Percentile	1.583
90% Chebyshev UPL	5.03	95% Percentile	3.545
95% Chebyshev UPL	7.035	99% Percentile	5.109
95% USL	5.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.027	First Quartile	0.0488
Second Largest	5.4	Median	0.096
Maximum	6.6	Third Quartile	0.783
Mean	1.054	SD	1.946
Coefficient of Variation	1.847	Skewness	2.22
Mean of logged Data	-1.519	SD of logged Data	1.824

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.595	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.36	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.828	90% Percentile (z)		3.548
	95% UPL (t)	4.532	95% Percentile (z)		4.255
	95% USL	5.927	99% Percentile (z)		5.581

Gamma GOF Test

A-D Test Statistic	1.426	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.818	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.265	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.217	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.416	k star (bias corrected MLE)	0.384
Theta hat (MLE)	2.533	Theta star (bias corrected MLE)	2.746
nu hat (MLE)	14.98	nu star (bias corrected)	13.82
MLE Mean (bias corrected)	1.054	MLE Sd (bias corrected)	1.701

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		4.33	90% Percentile		2.998
95% Hawkins Wixley (HW) Approx. Gamma UPL		4.443	95% Percentile		4.441
95% WH Approx. Gamma UTL with	95% Coverage	7.593	99% Percentile		8.087
95% HW Approx. Gamma UTL with	95% Coverage	8.541			
	95% WH USL	7.895	95% HW USL		8.942

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.886	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.222	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	19.22	90% Percentile (z)		2.268
	95% UPL (t)	5.707	95% Percentile (z)		4.401
	95% USL	21.1	99% Percentile (z)		15.26

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	6.6
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	6.6	95% BCA Bootstrap UTL with	95% Coverage	6.6
	95% UPL	6.6		90% Percentile	3.58
	90% Chebyshev UPL	7.052		95% Percentile	5.58
	95% Chebyshev UPL	9.77		99% Percentile	6.396
	95% USL	6.6			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	2	Number of Non-Detects	16
Number of Distinct Detects	2	Number of Distinct Non-Detects	15
Minimum Detect	0.989	Minimum Non-Detect	0.039
Maximum Detect	1.35	Maximum Non-Detect	0.368
Variance Detected	0.0652	Percent Non-Detects	88.89%
Mean Detected	1.17	SD Detected	0.255
Mean of Detected Logged Data	0.145	SD of Detected Logged Data	0.22

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.165	KM SD	0.36
95% UTL95% Coverage	1.049	95% KM UPL (t)	0.809
90% KM Percentile (z)	0.626	95% KM Percentile (z)	0.757
99% KM Percentile (z)	1.003	95% KM USL	1.067

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.199	SD	0.362
95% UTL95% Coverage	1.086	95% UPL (t)	0.845
90% Percentile (z)	0.662	95% Percentile (z)	0.794
99% Percentile (z)	1.04	95% USL	1.104

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	41.64	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0281	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	166.6	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A		
MLE Sd (bias corrected)	N/A	95% Percentile of Chisquare (2kstar)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.165	SD (KM)	0.36
Variance (KM)	0.13	SE of Mean (KM)	0.12
k hat (KM)	0.209	k star (KM)	0.211

nu hat (KM)	7.513	nu star (KM)	7.594
theta hat (KM)	0.789	theta star (KM)	0.78
80% gamma percentile (KM)	0.223	90% gamma percentile (KM)	0.498
95% gamma percentile (KM)	0.836	99% gamma percentile (KM)	1.76

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.909	0.881	95% Approx. Gamma UPL	0.55	0.508
95% KM Gamma Percentile	0.488	0.447	95% Gamma USL	0.941	0.916

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.337	Mean in Log Scale	-1.285
SD in Original Scale	0.31	SD in Log Scale	0.536
95% UTL95% Coverage	1.032	95% BCA UTL95% Coverage	1.35
95% Bootstrap (%) UTL95% Coverage	1.35	95% UPL (t)	0.722
90% Percentile (z)	0.55	95% Percentile (z)	0.669
99% Percentile (z)	0.964	95% USL	1.06

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.868	95% KM UTL (Lognormal)95% Coverage	0.777
KM SD of Logged Data	1.066	95% KM UPL (Lognormal)	0.382
95% KM Percentile Lognormal (z)	0.328	95% KM USL (Lognormal)	0.821

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.199	Mean in Log Scale	-2.447
SD in Original Scale	0.362	SD in Log Scale	1.142
95% UTL95% Coverage	1.425	95% UPL (t)	0.666
90% Percentile (z)	0.374	95% Percentile (z)	0.566
99% Percentile (z)	1.233	95% USL	1.511

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	1.35
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.35
95% USL	1.35	95% KM Chebyshev UPL	1.778

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	2	Number of Non-Detects	16
Number of Distinct Detects	2	Number of Distinct Non-Detects	15

Minimum Detect	0.989	Minimum Non-Detect	0.039
Maximum Detect	1.35	Maximum Non-Detect	0.368
Variance Detected	0.0652	Percent Non-Detects	88.89%
Mean Detected	1.17	SD Detected	0.255
Mean of Detected Logged Data	0.145	SD of Detected Logged Data	0.22

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.165	KM SD	0.36
95% UTL95% Coverage	1.049	95% KM UPL (t)	0.809
90% KM Percentile (z)	0.626	95% KM Percentile (z)	0.757
99% KM Percentile (z)	1.003	95% KM USL	1.067

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.199	SD	0.362
95% UTL95% Coverage	1.086	95% UPL (t)	0.845
90% Percentile (z)	0.662	95% Percentile (z)	0.794
99% Percentile (z)	1.04	95% USL	1.104

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	41.64	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0281	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	166.6	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A		
MLE Sd (bias corrected)	N/A	95% Percentile of Chisquare (2kstar)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.165	SD (KM)	0.36
Variance (KM)	0.13	SE of Mean (KM)	0.12
k hat (KM)	0.209	k star (KM)	0.211
nu hat (KM)	7.513	nu star (KM)	7.594
theta hat (KM)	0.789	theta star (KM)	0.78
80% gamma percentile (KM)	0.223	90% gamma percentile (KM)	0.498
95% gamma percentile (KM)	0.836	99% gamma percentile (KM)	1.76

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.909	0.881	95% Approx. Gamma UPL	0.55	0.508
95% KM Gamma Percentile	0.488	0.447	95% Gamma USL	0.941	0.916

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.337	Mean in Log Scale	-1.285
SD in Original Scale	0.31	SD in Log Scale	0.536
95% UTL95% Coverage	1.032	95% BCA UTL95% Coverage	1.35
95% Bootstrap (%) UTL95% Coverage	1.35	95% UPL (t)	0.722
90% Percentile (z)	0.55	95% Percentile (z)	0.669
99% Percentile (z)	0.964	95% USL	1.06

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.868	95% KM UTL (Lognormal)95% Coverage	0.777
KM SD of Logged Data	1.066	95% KM UPL (Lognormal)	0.382
95% KM Percentile Lognormal (z)	0.328	95% KM USL (Lognormal)	0.821

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.199	Mean in Log Scale	-2.447
SD in Original Scale	0.362	SD in Log Scale	1.142
95% UTL95% Coverage	1.425	95% UPL (t)	0.666
90% Percentile (z)	0.374	95% Percentile (z)	0.566
99% Percentile (z)	1.233	95% USL	1.511

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	1.35
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.35
95% USL	1.35	95% KM Chebyshev UPL	1.778

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	2	Number of Non-Detects	16
Number of Distinct Detects	2	Number of Distinct Non-Detects	15
Minimum Detect	0.989	Minimum Non-Detect	0.039
Maximum Detect	1.35	Maximum Non-Detect	0.368
Variance Detected	0.0652	Percent Non-Detects	88.89%
Mean Detected	1.17	SD Detected	0.255
Mean of Detected Logged Data	0.145	SD of Detected Logged Data	0.22

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.165	KM SD	0.36
95% UTL95% Coverage	1.049	95% KM UPL (t)	0.809
90% KM Percentile (z)	0.626	95% KM Percentile (z)	0.757
99% KM Percentile (z)	1.003	95% KM USL	1.067

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.199	SD	0.362
95% UTL95% Coverage	1.086	95% UPL (t)	0.845
90% Percentile (z)	0.662	95% Percentile (z)	0.794
99% Percentile (z)	1.04	95% USL	1.104

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	41.64	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0281	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	166.6	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A		
MLE Sd (bias corrected)	N/A	95% Percentile of Chisquare (2kstar)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.165	SD (KM)	0.36
Variance (KM)	0.13	SE of Mean (KM)	0.12
k hat (KM)	0.209	k star (KM)	0.211
nu hat (KM)	7.513	nu star (KM)	7.594
theta hat (KM)	0.789	theta star (KM)	0.78
80% gamma percentile (KM)	0.223	90% gamma percentile (KM)	0.498
95% gamma percentile (KM)	0.836	99% gamma percentile (KM)	1.76

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.909	0.881	95% Approx. Gamma UPL	0.55	0.508
95% KM Gamma Percentile	0.488	0.447	95% Gamma USL	0.941	0.916

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.337	Mean in Log Scale	-1.285
SD in Original Scale	0.31	SD in Log Scale	0.536
95% UTL95% Coverage	1.032	95% BCA UTL95% Coverage	1.35
95% Bootstrap (%) UTL95% Coverage	1.35	95% UPL (t)	0.722
90% Percentile (z)	0.55	95% Percentile (z)	0.669
99% Percentile (z)	0.964	95% USL	1.06

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.868	95% KM UTL (Lognormal)95% Coverage	0.777
KM SD of Logged Data	1.066	95% KM UPL (Lognormal)	0.382
95% KM Percentile Lognormal (z)	0.328	95% KM USL (Lognormal)	0.821

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.199	Mean in Log Scale	-2.447
SD in Original Scale	0.362	SD in Log Scale	1.142
95% UTL95% Coverage	1.425	95% UPL (t)	0.666
90% Percentile (z)	0.374	95% Percentile (z)	0.566
99% Percentile (z)	1.233	95% USL	1.511

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	1.35
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.35
95% USL	1.35	95% KM Chebyshev UPL	1.778

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.022	First Quartile	0.0385
Second Largest	0.71	Median	0.0705
Maximum	0.96	Third Quartile	0.17
Mean	0.169	SD	0.253
Coefficient of Variation	1.496	Skewness	2.562
Mean of logged Data	-2.441	SD of logged Data	1.091

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.594	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.791	90% Percentile (z)	0.494
95% UPL (t)	0.622	95% Percentile (z)	0.586
95% USL	0.804	99% Percentile (z)	0.759

Gamma GOF Test

A-D Test Statistic	1.126	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.772	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.174	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.881	k star (bias corrected MLE)	0.771

Theta hat (MLE)	0.192	Theta star (bias corrected MLE)	0.22
nu hat (MLE)	31.71	nu star (bias corrected)	27.76
MLE Mean (bias corrected)	0.169	MLE Sd (bias corrected)	0.193

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.567	90% Percentile	0.416
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.57	95% Percentile	0.557
95% WH Approx. Gamma UTL with 95% Coverage	0.884	99% Percentile	0.891
95% HW Approx. Gamma UTL with 95% Coverage	0.931		
95% WH USL	0.912	95% HW USL	0.964

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.134	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1.264	90% Percentile (z)	0.352
95% UPL (t)	0.612	95% Percentile (z)	0.524
95% USL	1.336	99% Percentile (z)	1.101

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.96
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.96	95% BCA Bootstrap UTL with 95% Coverage	0.96
95% UPL	0.96	90% Percentile	0.374
90% Chebyshev UPL	0.951	95% Percentile	0.748
95% Chebyshev UPL	1.305	99% Percentile	0.918
95% USL	0.96		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	6.2000E-4	First Quartile	0.00118
Second Largest	0.016	Median	0.0023
Maximum	0.021	Third Quartile	0.00423
Mean	0.00423	SD	0.00548
Coefficient of Variation	1.295	Skewness	2.455
Mean of logged Data	-5.98	SD of logged Data	0.968

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.631	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.284	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0177	90% Percentile (z)	0.0112
	95% UPL (t)	0.014	95% Percentile (z)	0.0132
	95% USL	0.0179	99% Percentile (z)	0.017

Gamma GOF Test

A-D Test Statistic	0.953	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.764	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.182	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.209	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.111	k star (bias corrected MLE)	0.963
Theta hat (MLE)	0.00381	Theta star (bias corrected MLE)	0.00439
nu hat (MLE)	39.98	nu star (bias corrected)	34.65
MLE Mean (bias corrected)	0.00423	MLE Sd (bias corrected)	0.00431

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0132	90% Percentile	0.00983
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0133	95% Percentile	0.0128
95% WH Approx. Gamma UTL with	95% Coverage	0.0199	99% Percentile	0.0198
95% HW Approx. Gamma UTL with	95% Coverage	0.0209		
	95% WH USL	0.0205	95% HW USL	0.0216

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.118	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0272	90% Percentile (z)	0.00875
	95% UPL (t)	0.0143	95% Percentile (z)	0.0124
	95% USL	0.0286	99% Percentile (z)	0.0241

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	0.021
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.021	95% BCA Bootstrap UTL with 95% Coverage	0.021
	95% UPL	0.021	90% Percentile	0.00886
	90% Chebyshev UPL	0.0211	95% Percentile	0.0168
	95% Chebyshev UPL	0.0288	99% Percentile	0.0202
	95% USL	0.021		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.022	First Quartile	0.0385
Second Largest	0.71	Median	0.0705
Maximum	0.96	Third Quartile	0.17
Mean	0.169	SD	0.253
Coefficient of Variation	1.496	Skewness	2.562
Mean of logged Data	-2.441	SD of logged Data	1.091

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.594	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.791	90% Percentile (z)	0.494
	95% UPL (t)	0.622	95% Percentile (z)	0.586
	95% USL	0.804	99% Percentile (z)	0.759

Gamma GOF Test

A-D Test Statistic	1.126	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.772	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.174	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.881	k star (bias corrected MLE)	0.771
Theta hat (MLE)	0.192	Theta star (bias corrected MLE)	0.22
nu hat (MLE)	31.71	nu star (bias corrected)	27.76
MLE Mean (bias corrected)	0.169	MLE Sd (bias corrected)	0.193

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.567	90% Percentile	0.416
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.57	95% Percentile	0.557
95% WH Approx. Gamma UTL with	95% Coverage	0.884	99% Percentile	0.891
95% HW Approx. Gamma UTL with	95% Coverage	0.931		
	95% WH USL	0.912	95% HW USL	0.964

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.134	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.264		90% Percentile (z)	0.352
	95% UPL (t)	0.612		95% Percentile (z)	0.524
	95% USL	1.336		99% Percentile (z)	1.101

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	18	95% UTL with	95% Coverage	0.96
	Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.96	95% BCA Bootstrap UTL with	95% Coverage	0.96
	95% UPL	0.96		90% Percentile	0.374
	90% Chebyshev UPL	0.951		95% Percentile	0.748
	95% Chebyshev UPL	1.305		99% Percentile	0.918
	95% USL	0.96			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.022	First Quartile	0.0385
Second Largest	0.71	Median	0.0705
Maximum	0.96	Third Quartile	0.17
Mean	0.169	SD	0.253
Coefficient of Variation	1.496	Skewness	2.562
Mean of logged Data	-2.441	SD of logged Data	1.091

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.594	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.791		90% Percentile (z)	0.494
	95% UPL (t)	0.622		95% Percentile (z)	0.586
	95% USL	0.804		99% Percentile (z)	0.759

Gamma GOF Test

A-D Test Statistic	1.126	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.772	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.174	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.881	k star (bias corrected MLE)	0.771
Theta hat (MLE)	0.192	Theta star (bias corrected MLE)	0.22
nu hat (MLE)	31.71	nu star (bias corrected)	27.76
MLE Mean (bias corrected)	0.169	MLE Sd (bias corrected)	0.193

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.567	90% Percentile	0.416
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.57	95% Percentile	0.557
95% WH Approx. Gamma UTL with 95% Coverage	0.884	99% Percentile	0.891
95% HW Approx. Gamma UTL with 95% Coverage	0.931		
95% WH USL	0.912	95% HW USL	0.964

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.134	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1.264	90% Percentile (z)	0.352
95% UPL (t)	0.612	95% Percentile (z)	0.524
95% USL	1.336	99% Percentile (z)	1.101

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.96
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.96	95% BCA Bootstrap UTL with 95% Coverage	0.96
95% UPL	0.96	90% Percentile	0.374
90% Chebyshev UPL	0.951	95% Percentile	0.748
95% Chebyshev UPL	1.305	99% Percentile	0.918
95% USL	0.96		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	6.1000E-4	First Quartile	0.0011
Second Largest	0.019	Median	0.00195
Maximum	0.027	Third Quartile	0.00473
Mean	0.00469	SD	0.00701
Coefficient of Variation	1.495	Skewness	2.604
Mean of logged Data	-6.023	SD of logged Data	1.088

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.596	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.31	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0219	90% Percentile (z)	0.0137
	95% UPL (t)	0.0172	95% Percentile (z)	0.0162
	95% USL	0.0223	99% Percentile (z)	0.021

Gamma GOF Test

A-D Test Statistic	1.093	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.772	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.17	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.886	k star (bias corrected MLE)	0.775
Theta hat (MLE)	0.00529	Theta star (bias corrected MLE)	0.00605
nu hat (MLE)	31.9	nu star (bias corrected)	27.92
MLE Mean (bias corrected)	0.00469	MLE Sd (bias corrected)	0.00533

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0157	90% Percentile	0.0115
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0157	95% Percentile	0.0154
95% WH Approx. Gamma UTL with	95% Coverage	0.0244	99% Percentile	0.0246
95% HW Approx. Gamma UTL with	95% Coverage	0.0257		
	95% WH USL	0.0252	95% HW USL	0.0266

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.128	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0349	90% Percentile (z)	0.00977
	95% UPL (t)	0.0169	95% Percentile (z)	0.0145
	95% USL	0.0369	99% Percentile (z)	0.0304

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	0.027
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.027	95% BCA Bootstrap UTL with 95% Coverage	0.027
	95% UPL	0.027	90% Percentile	0.0102
	90% Chebyshev UPL	0.0263	95% Percentile	0.0202
	95% Chebyshev UPL	0.0361	99% Percentile	0.0256

95% USL	0.027

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.0021	First Quartile	0.0039
Second Largest	0.076	Median	0.00725
Maximum	0.1	Third Quartile	0.0178
Mean	0.0178	SD	0.0268
Coefficient of Variation	1.504	Skewness	2.51
Mean of logged Data	-4.721	SD of logged Data	1.118

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.6	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.3	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0834	90% Percentile (z)	0.0521
	95% UPL (t)	0.0656	95% Percentile (z)	0.0618
	95% USL	0.0848	99% Percentile (z)	0.08

Gamma GOF Test

A-D Test Statistic	1.096	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.773	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.163	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.851	k star (bias corrected MLE)	0.746
Theta hat (MLE)	0.0209	Theta star (bias corrected MLE)	0.0238
nu hat (MLE)	30.65	nu star (bias corrected)	26.87
MLE Mean (bias corrected)	0.0178	MLE Sd (bias corrected)	0.0206

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0603	90% Percentile	0.044
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0606	95% Percentile	0.0592
95% WH Approx. Gamma UTL with	95% Coverage	0.0944	99% Percentile	0.0952
95% HW Approx. Gamma UTL with	95% Coverage	0.0998		
	95% WH USL	0.0974	95% HW USL	0.103

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.927	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level

Lilliefors Test Statistic	0.138	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.138	90% Percentile (z)	0.0373
	95% UPL (t)	0.0657	95% Percentile (z)	0.0561
	95% USL	0.147	99% Percentile (z)	0.12

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with	95% Coverage	0.1
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
		Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.1	95% BCA Bootstrap UTL with	95% Coverage	0.1
	95% UPL	0.1		90% Percentile	0.041
	90% Chebyshev UPL	0.1		95% Percentile	0.0796
	95% Chebyshev UPL	0.138		99% Percentile	0.0959
	95% USL	0.1			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (magnesium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	2480	First Quartile	3323
Second Largest	7260	Median	4070
Maximum	7420	Third Quartile	5403
Mean	4447	SD	1477
Coefficient of Variation	0.332	Skewness	0.782
Mean of logged Data	8.35	SD of logged Data	0.321

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.919	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.183	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	8071	90% Percentile (z)	6340
	95% UPL (t)	7087	95% Percentile (z)	6877
	95% USL	8146	99% Percentile (z)	7883

Gamma GOF Test

A-D Test Statistic	0.345	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level	

K-S Test Statistic	0.148	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.28	k star (bias corrected MLE)	8.6
Theta hat (MLE)	432.7	Theta star (bias corrected MLE)	517.1
nu hat (MLE)	369.9	nu star (bias corrected)	309.6
MLE Mean (bias corrected)	4447	MLE Sd (bias corrected)	1516

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	7313	90% Percentile	6467
95% Hawkins Wixley (HW) Approx. Gamma UPL	7355	95% Percentile	7198
95% WH Approx. Gamma UTL with 95% Coverage	8720	99% Percentile	8709
95% HW Approx. Gamma UTL with 95% Coverage	8840		
95% WH USL	8834	95% HW USL	8963

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.963	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	9291	90% Percentile (z)	6382
95% UPL (t)	7505	95% Percentile (z)	7170
95% USL	9444	99% Percentile (z)	8921

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	7420
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7420	95% BCA Bootstrap UTL with 95% Coverage	7420
95% UPL	7420	90% Percentile	6490
90% Chebyshev UPL	9000	95% Percentile	7284
95% Chebyshev UPL	11063	99% Percentile	7393
95% USL	7420		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.92	Minimum Non-Detect	0.79
Maximum Detect	716	Maximum Non-Detect	1.93

Variance Detected	74079	Percent Non-Detects	22.22%
Mean Detected	265.9	SD Detected	272.2
Mean of Detected Logged Data	4.289	SD of Detected Logged Data	2.196

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.85	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.263	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	207	KM SD	256.2
95% UTL95% Coverage	835.5	95% KM UPL (t)	664.9
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.4
99% KM Percentile (z)	803	95% KM USL	848.6

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.9	SD	263.7
95% UTL95% Coverage	853.7	95% UPL (t)	678.2
90% Percentile (z)	544.9	95% Percentile (z)	640.7
99% Percentile (z)	820.3	95% USL	867.2

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.851	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.795	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.206	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.492	k star (bias corrected MLE)	0.434
Theta hat (MLE)	540.4	Theta star (bias corrected MLE)	612.3
nu hat (MLE)	13.78	nu star (bias corrected)	12.16
MLE Mean (bias corrected)	265.9		
MLE Sd (bias corrected)	403.5	95% Percentile of Chisquare (2kstar)	3.507

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2.92	Mean	208
Maximum	716	Median	22.85
SD	262.8	CV	1.264
k hat (MLE)	0.402	k star (bias corrected MLE)	0.372
Theta hat (MLE)	516.8	Theta star (bias corrected MLE)	558.5
nu hat (MLE)	14.49	nu star (bias corrected)	13.41
MLE Mean (bias corrected)	208	MLE Sd (bias corrected)	340.8
95% Percentile of Chisquare (2kstar)	3.171	90% Percentile	594.7
95% Percentile	885.6	99% Percentile	1623

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1640	2058	95% Approx. Gamma UPL	938.3	1054
95% Gamma USL	1705	2156			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	207	SD (KM)	256.2
Variance (KM)	65648	SE of Mean (KM)	62.67
k hat (KM)	0.653	k star (KM)	0.581
nu hat (KM)	23.49	nu star (KM)	20.91
theta hat (KM)	317.2	theta star (KM)	356.3
80% gamma percentile (KM)	341.2	90% gamma percentile (KM)	542.2
95% gamma percentile (KM)	753.5	99% gamma percentile (KM)	1266

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1662	2164	95% Approx. Gamma UPL	934.9	1075
95% KM Gamma Percentile	813.7	909.5	95% Gamma USL	1729	2272

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.83	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.246	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.9	Mean in Log Scale	3.235
SD in Original Scale	263.7	SD in Log Scale	2.794
95% UTL95% Coverage	24058	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3745
90% Percentile (z)	911.6	95% Percentile (z)	2516
99% Percentile (z)	16888	95% USL	27743

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.283	95% KM UTL (Lognormal)95% Coverage	17724
KM SD of Logged Data	2.649	95% KM UPL (Lognormal)	3038
95% KM Percentile Lognormal (z)	2083	95% KM USL (Lognormal)	20289

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.9	Mean in Log Scale	3.218
SD in Original Scale	263.7	SD in Log Scale	2.822
95% UTL95% Coverage	25350	95% UPL (t)	3873
90% Percentile (z)	929.6	95% Percentile (z)	2591
99% Percentile (z)	17732	95% USL	29275

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	716
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1354

Table C3-6
ProUCL Output for Porewater BTVs and BTV HQs, Approach C
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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and consists of observations collected from clean unimpacted locations.
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concDL (manganese_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.92	Minimum Non-Detect	0.79
Maximum Detect	716	Maximum Non-Detect	1.93
Variance Detected	74079	Percent Non-Detects	22.22%
Mean Detected	265.9	SD Detected	272.2
Mean of Detected Logged Data	4.289	SD of Detected Logged Data	2.196

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.85	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.263	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	207	KM SD	256.2
95% UTL95% Coverage	835.5	95% KM UPL (t)	664.9
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.4
99% KM Percentile (z)	803	95% KM USL	848.6

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.9	SD	263.7
95% UTL95% Coverage	853.7	95% UPL (t)	678.2
90% Percentile (z)	544.9	95% Percentile (z)	640.7
99% Percentile (z)	820.3	95% USL	867.2

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.851	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.795	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.206	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.492	k star (bias corrected MLE)	0.434
Theta hat (MLE)	540.4	Theta star (bias corrected MLE)	612.3
nu hat (MLE)	13.78	nu star (bias corrected)	12.16
MLE Mean (bias corrected)	265.9		
MLE Sd (bias corrected)	403.5	95% Percentile of Chisquare (2kstar)	3.507

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Maximum	716	Median	22.85
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k hat (MLE)	0.402	k star (bias corrected MLE)	0.372
Theta hat (MLE)	516.8	Theta star (bias corrected MLE)	558.5
nu hat (MLE)	14.49	nu star (bias corrected)	13.41
MLE Mean (bias corrected)	208	MLE Sd (bias corrected)	340.8
95% Percentile of Chisquare (2kstar)	3.171	90% Percentile	594.7
95% Percentile	885.6	99% Percentile	1623

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1640	2058	95% Approx. Gamma UPL	938.3	1054
95% Gamma USL	1705	2156			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	207	SD (KM)	256.2
Variance (KM)	65648	SE of Mean (KM)	62.67
k hat (KM)	0.653	k star (KM)	0.581
nu hat (KM)	23.49	nu star (KM)	20.91
theta hat (KM)	317.2	theta star (KM)	356.3
80% gamma percentile (KM)	341.2	90% gamma percentile (KM)	542.2
95% gamma percentile (KM)	753.5	99% gamma percentile (KM)	1266

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1662	2164	95% Approx. Gamma UPL	934.9	1075
95% KM Gamma Percentile	813.7	909.5	95% Gamma USL	1729	2272

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.83	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.246	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.9	Mean in Log Scale	3.235
SD in Original Scale	263.7	SD in Log Scale	2.794
95% UTL95% Coverage	24058	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3745
90% Percentile (z)	911.6	95% Percentile (z)	2516
99% Percentile (z)	16888	95% USL	27743

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.283	95% KM UTL (Lognormal)95% Coverage	17724
KM SD of Logged Data	2.649	95% KM UPL (Lognormal)	3038
95% KM Percentile Lognormal (z)	2083	95% KM USL (Lognormal)	20289

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.9	Mean in Log Scale	3.218

SD in Original Scale	263.7	SD in Log Scale	2.822
95% UTL95% Coverage	25350	95% UPL (t)	3873
90% Percentile (z)	929.6	95% Percentile (z)	2591
99% Percentile (z)	17732	95% USL	29275

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Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	716
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1354

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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concDL (manganese_ug/l_concentration_fish_awqc)

General Statistics

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Number of Distinct Observations	18		
Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.92	Minimum Non-Detect	0.79
Maximum Detect	716	Maximum Non-Detect	1.93
Variance Detected	74079	Percent Non-Detects	22.22%
Mean Detected	265.9	SD Detected	272.2
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1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	207	KM SD	256.2
95% UTL95% Coverage	835.5	95% KM UPL (t)	664.9
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.4
99% KM Percentile (z)	803	95% KM USL	848.6

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.9	SD	263.7
95% UTL95% Coverage	853.7	95% UPL (t)	678.2
90% Percentile (z)	544.9	95% Percentile (z)	640.7
99% Percentile (z)	820.3	95% USL	867.2

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Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.851	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.795	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.206	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.492	k star (bias corrected MLE)	0.434
Theta hat (MLE)	540.4	Theta star (bias corrected MLE)	612.3
nu hat (MLE)	13.78	nu star (bias corrected)	12.16
MLE Mean (bias corrected)	265.9		
MLE Sd (bias corrected)	403.5	95% Percentile of Chisquare (2kstar)	3.507

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2.92	Mean	208
Maximum	716	Median	22.85
SD	262.8	CV	1.264
k hat (MLE)	0.402	k star (bias corrected MLE)	0.372
Theta hat (MLE)	516.8	Theta star (bias corrected MLE)	558.5
nu hat (MLE)	14.49	nu star (bias corrected)	13.41
MLE Mean (bias corrected)	208	MLE Sd (bias corrected)	340.8
95% Percentile of Chisquare (2kstar)	3.171	90% Percentile	594.7
95% Percentile	885.6	99% Percentile	1623

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1640	2058	95% Approx. Gamma UPL	938.3	1054
95% Gamma USL	1705	2156			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	207	SD (KM)	256.2
Variance (KM)	65648	SE of Mean (KM)	62.67
k hat (KM)	0.653	k star (KM)	0.581
nu hat (KM)	23.49	nu star (KM)	20.91
theta hat (KM)	317.2	theta star (KM)	356.3
80% gamma percentile (KM)	341.2	90% gamma percentile (KM)	542.2
95% gamma percentile (KM)	753.5	99% gamma percentile (KM)	1266

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1662	2164	95% Approx. Gamma UPL	934.9	1075
95% KM Gamma Percentile	813.7	909.5	95% Gamma USL	1729	2272

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.83	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.246	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.9	Mean in Log Scale	3.235
SD in Original Scale	263.7	SD in Log Scale	2.794
95% UTL95% Coverage	24058	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3745
90% Percentile (z)	911.6	95% Percentile (z)	2516
99% Percentile (z)	16888	95% USL	27743

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.283	95% KM UTL (Lognormal)95% Coverage	17724
KM SD of Logged Data	2.649	95% KM UPL (Lognormal)	3038
95% KM Percentile Lognormal (z)	2083	95% KM USL (Lognormal)	20289

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.9	Mean in Log Scale	3.218
SD in Original Scale	263.7	SD in Log Scale	2.822
95% UTL95% Coverage	25350	95% UPL (t)	3873
90% Percentile (z)	929.6	95% Percentile (z)	2591
99% Percentile (z)	17732	95% USL	29275

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	716
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1354

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	4.9000E-4	First Quartile	0.00233
Second Largest	0.39	Median	0.0119
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.238	Skewness	0.867
Mean of logged Data	-3.959	SD of logged Data	2.552

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.316	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.516		90% Percentile (z)	0.33
	95% UPL (t)	0.41		95% Percentile (z)	0.388
	95% USL	0.524		99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.276	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.831	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.225	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.219	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.353	k star (bias corrected MLE)	0.331
Theta hat (MLE)	0.362	Theta star (bias corrected MLE)	0.385
nu hat (MLE)	12.71	nu star (bias corrected)	11.93
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.222

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.599		90% Percentile	0.372
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.69		95% Percentile	0.566
95% WH Approx. Gamma UTL with	95% Coverage	1.064		99% Percentile	1.063
95% HW Approx. Gamma UTL with	95% Coverage	1.384			
	95% WH USL	1.107		95% HW USL	1.453

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.853	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	9.978		90% Percentile (z)	0.502
	95% UPL (t)	1.825		95% Percentile (z)	1.269
	95% USL	11.37		99% Percentile (z)	7.222

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	18		95% UTL with 95% Coverage	0.47
	Approx, f used to compute achieved CC	0.947		Approximate Actual Confidence Coefficient achieved by UTL	0.603
				Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.47		95% BCA Bootstrap UTL with 95% Coverage	0.47
	95% UPL	0.47		90% Percentile	0.334
	90% Chebyshev UPL	0.615		95% Percentile	0.402
	95% Chebyshev UPL	0.836		99% Percentile	0.456
	95% USL	0.47			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	4.9000E-5	First Quartile	1.9000E-4
Second Largest	0.044	Median	0.0014
Maximum	0.045	Third Quartile	0.0233
Mean	0.0129	SD	0.0165
Coefficient of Variation	1.278	Skewness	0.96
Mean of logged Data	-6.313	SD of logged Data	2.611

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.773	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.305	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0533	90% Percentile (z)	0.034
	95% UPL (t)	0.0423	95% Percentile (z)	0.04
	95% USL	0.0542	99% Percentile (z)	0.0512

Gamma GOF Test

A-D Test Statistic	1.082	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.833	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.22	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.344	k star (bias corrected MLE)	0.323
Theta hat (MLE)	0.0375	Theta star (bias corrected MLE)	0.0399
nu hat (MLE)	12.37	nu star (bias corrected)	11.64
MLE Mean (bias corrected)	0.0129	MLE Sd (bias corrected)	0.0227

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0606	90% Percentile	0.0377
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0698	95% Percentile	0.0576
95% WH Approx. Gamma UTL with 95% Coverage	0.108	99% Percentile	0.109
95% HW Approx. Gamma UTL with 95% Coverage	0.141		
95% WH USL	0.112	95% HW USL	0.148

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.861	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.21	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.097	90% Percentile (z)	0.0515
	95% UPL (t)	0.193	95% Percentile (z)	0.133
	95% USL	1.253	99% Percentile (z)	0.788

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.045
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.045	95% BCA Bootstrap UTL with 95% Coverage	0.045
95% UPL	0.045	90% Percentile	0.0398
90% Chebyshev UPL	0.0637	95% Percentile	0.0442
95% Chebyshev UPL	0.0867	99% Percentile	0.0448
95% USL	0.045		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	4.9000E-4	First Quartile	0.00233
Second Largest	0.39	Median	0.0119
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.238	Skewness	0.867
Mean of logged Data	-3.959	SD of logged Data	2.552

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.316	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.516	90% Percentile (z)	0.33
95% UPL (t)	0.41	95% Percentile (z)	0.388
95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.276	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.831	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.225	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.219	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.353	k star (bias corrected MLE)	0.331
Theta hat (MLE)	0.362	Theta star (bias corrected MLE)	0.385
nu hat (MLE)	12.71	nu star (bias corrected)	11.93
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.222

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.599	90% Percentile	0.372
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.69	95% Percentile	0.566
95% WH Approx. Gamma UTL with 95% Coverage	1.064	99% Percentile	1.063
95% HW Approx. Gamma UTL with 95% Coverage	1.384		
95% WH USL	1.107	95% HW USL	1.453

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.853	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	9.978	90% Percentile (z)	0.502
95% UPL (t)	1.825	95% Percentile (z)	1.269
95% USL	11.37	99% Percentile (z)	7.222

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.47	95% BCA Bootstrap UTL with 95% Coverage	0.47
95% UPL	0.47	90% Percentile	0.334
90% Chebyshev UPL	0.615	95% Percentile	0.402
95% Chebyshev UPL	0.836	99% Percentile	0.456
95% USL	0.47		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	4.9000E-4	First Quartile	0.00233
Second Largest	0.39	Median	0.0119
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.238	Skewness	0.867
Mean of logged Data	-3.959	SD of logged Data	2.552

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.316	**Lilliefors GOF Test**

1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.516	90% Percentile (z)	0.33
	95% UPL (t)	0.41	95% Percentile (z)	0.388
	95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.276	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.831	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.225	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.219	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.353	k star (bias corrected MLE)	0.331
Theta hat (MLE)	0.362	Theta star (bias corrected MLE)	0.385
nu hat (MLE)	12.71	nu star (bias corrected)	11.93
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.222

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.599	90% Percentile	0.372
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.69	95% Percentile	0.566
95% WH Approx. Gamma UTL with	95% Coverage	1.064	99% Percentile	1.063
95% HW Approx. Gamma UTL with	95% Coverage	1.384		
	95% WH USL	1.107	95% HW USL	1.453

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.853	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	9.978	90% Percentile (z)	0.502
	95% UPL (t)	1.825	95% Percentile (z)	1.269
	95% USL	11.37	99% Percentile (z)	7.222

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.47	95% BCA Bootstrap UTL with 95% Coverage	0.47
	95% UPL	0.47	90% Percentile	0.334
	90% Chebyshev UPL	0.615	95% Percentile	0.402
	95% Chebyshev UPL	0.836	99% Percentile	0.456
	95% USL	0.47		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data

represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (ph_su_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	6.65	First Quartile	6.838
Second Largest	7.33	Median	7.03
Maximum	7.44	Third Quartile	7.173
Mean	7.013	SD	0.237
Coefficient of Variation	0.0338	Skewness	-0.0203
Mean of logged Data	1.947	SD of logged Data	0.0338

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.961	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	7.595	90% Percentile (z)	7.317
	95% UPL (t)	7.437	95% Percentile (z)	7.403
	95% USL	7.607	99% Percentile (z)	7.565

Gamma GOF Test

A-D Test Statistic	0.281	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.737	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.134	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	925.3	k star (bias corrected MLE)	771.1
Theta hat (MLE)	0.00758	Theta star (bias corrected MLE)	0.00909
nu hat (MLE)	33311	nu star (bias corrected)	27761
MLE Mean (bias corrected)	7.013	MLE Sd (bias corrected)	0.253

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		7.443	90% Percentile	7.339
95% Hawkins Wixley (HW) Approx. Gamma UPL		7.444	95% Percentile	7.434
95% WH Approx. Gamma UTL with	95% Coverage	7.609	99% Percentile	7.614
95% HW Approx. Gamma UTL with	95% Coverage	7.611		
	95% WH USL	7.622	95% HW USL	7.624

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.96	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.132	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	7.616	90% Percentile (z)	7.32

95% UPL (t)	7.447	95% Percentile (z)	7.411
95% USL	7.629	99% Percentile (z)	7.584

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	7.44
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7.44	95% BCA Bootstrap UTL with 95% Coverage	7.44
95% UPL	7.44	90% Percentile	7.288
90% Chebyshev UPL	7.744	95% Percentile	7.347
95% Chebyshev UPL	8.075	99% Percentile	7.421
95% USL	7.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (potassium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	700	First Quartile	802.5
Second Largest	2880	Median	1310
Maximum	7720	Third Quartile	2015
Mean	1847	SD	1638
Coefficient of Variation	0.887	Skewness	2.953
Mean of logged Data	7.291	SD of logged Data	0.645

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.651	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	5864	90% Percentile (z)	3946
95% UPL (t)	4774	95% Percentile (z)	4541
95% USL	5948	99% Percentile (z)	5657

Gamma GOF Test

A-D Test Statistic	0.769	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.75	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.15	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.206	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.327	k star (bias corrected MLE)	1.976

Theta hat (MLE)	793.5	Theta star (bias corrected MLE)	934.4
nu hat (MLE)	83.78	nu star (bias corrected)	71.15
MLE Mean (bias corrected)	1847	MLE Sd (bias corrected)	1314

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4516	90% Percentile	3602
95% Hawkins Wixley (HW) Approx. Gamma UPL	4524	95% Percentile	4397
95% WH Approx. Gamma UTL with 95% Coverage	6183	99% Percentile	6161
95% HW Approx. Gamma UTL with 95% Coverage	6334		
95% WH USL	6325	95% HW USL	6493

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.906	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.155	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	7133	90% Percentile (z)	3352
95% UPL (t)	4644	95% Percentile (z)	4236
95% USL	7371	99% Percentile (z)	6573

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	7720
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7720	95% BCA Bootstrap UTL with 95% Coverage	7720
95% UPL	7720	90% Percentile	2754
90% Chebyshev UPL	6895	95% Percentile	3606
95% Chebyshev UPL	9182	99% Percentile	6897
95% USL	7720		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sodium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	16	Number of Non-Detects	2
Number of Distinct Detects	15	Number of Distinct Non-Detects	2
Minimum Detect	1600	Minimum Non-Detect	940
Maximum Detect	5190	Maximum Non-Detect	1130
Variance Detected	1167113	Percent Non-Detects	11.11%
Mean Detected	2729	SD Detected	1080
Mean of Detected Logged Data	7.848	SD of Detected Logged Data	0.355

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.834	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2531	KM SD	1135
95% UTL95% Coverage	5315	95% KM UPL (t)	4560
90% KM Percentile (z)	3985	95% KM Percentile (z)	4398
99% KM Percentile (z)	5172	95% KM USL	5373

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2484	SD	1242
95% UTL95% Coverage	5529	95% UPL (t)	4703
90% Percentile (z)	4075	95% Percentile (z)	4526
99% Percentile (z)	5372	95% USL	5593

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.896	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.74	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.222	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.215	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	8.038	k star (bias corrected MLE)	6.573
Theta hat (MLE)	339.6	Theta star (bias corrected MLE)	415.3
nu hat (MLE)	257.2	nu star (bias corrected)	210.3
MLE Mean (bias corrected)	2729		
MLE Sd (bias corrected)	1065	95% Percentile of Chisquare (2kstar)	22.56

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	720.6	Mean	2506
Maximum	5190	Median	2175
SD	1205	CV	0.481
k hat (MLE)	4.358	k star (bias corrected MLE)	3.669
Theta hat (MLE)	575	Theta star (bias corrected MLE)	683.1
nu hat (MLE)	156.9	nu star (bias corrected)	132.1
MLE Mean (bias corrected)	2506	MLE Sd (bias corrected)	1308
95% Percentile of Chisquare (2kstar)	14.56	90% Percentile	4260
95% Percentile	4972	99% Percentile	6498

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	6545	6822	95% Approx. Gamma UPL	5109	5222
95% Gamma USL	6665	6958			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2531	SD (KM)	1135
Variance (KM)	1288827	SE of Mean (KM)	276.4
k hat (KM)	4.969	k star (KM)	4.178
nu hat (KM)	178.9	nu star (KM)	150.4
theta hat (KM)	509.3	theta star (KM)	605.7
80% gamma percentile (KM)	3472	90% gamma percentile (KM)	4190
95% gamma percentile (KM)	4850	99% gamma percentile (KM)	6256

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	6047	6216	95% Approx. Gamma UPL	4821	4883
95% KM Gamma Percentile	4582	4628	95% Gamma USL	6149	6328

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.9	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.906	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.205	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.196	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2552	Mean in Log Scale	7.757
SD in Original Scale	1139	SD in Log Scale	0.426
95% UTL95% Coverage	6648	95% BCA UTL95% Coverage	5190
95% Bootstrap (%) UTL95% Coverage	5190	95% UPL (t)	5007
90% Percentile (z)	4037	95% Percentile (z)	4712
99% Percentile (z)	6299	95% USL	6794

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	7.737	95% KM UTL (Lognormal)95% Coverage	6948
KM SD of Logged Data	0.452	95% KM UPL (Lognormal)	5142
95% KM Percentile Lognormal (z)	4821	95% KM USL (Lognormal)	7110

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2484	Mean in Log Scale	7.67
SD in Original Scale	1242	SD in Log Scale	0.618
95% UTL95% Coverage	9749	95% UPL (t)	6463
90% Percentile (z)	4729	95% Percentile (z)	5919
99% Percentile (z)	9015	95% USL	10061

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	5190
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5190
95% USL	5190	95% KM Chebyshev UPL	7615

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sulfate_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	3.83	First Quartile	9.303
Second Largest	28.5	Median	12.45
Maximum	35.4	Third Quartile	20.2
Mean	15.66	SD	8.692
Coefficient of Variation	0.555	Skewness	0.793
Mean of logged Data	2.597	SD of logged Data	0.591

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	36.98	90% Percentile (z)	26.8
	95% UPL (t)	31.19	95% Percentile (z)	29.95
	95% USL	37.42	99% Percentile (z)	35.88

Gamma GOF Test

A-D Test Statistic	0.206	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.136	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.205	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.406	k star (bias corrected MLE)	2.876
Theta hat (MLE)	4.596	Theta star (bias corrected MLE)	5.444
nu hat (MLE)	122.6	nu star (bias corrected)	103.5
MLE Mean (bias corrected)	15.66	MLE Sd (bias corrected)	9.233

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		34.35	90% Percentile	28.03
95% Hawkins Wixley (HW) Approx. Gamma UPL		35.13	95% Percentile	33.26
95% WH Approx. Gamma UTL with	95% Coverage	45.12	99% Percentile	44.62
95% HW Approx. Gamma UTL with	95% Coverage	47.19		
	95% WH USL	46.03	95% HW USL	48.23

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.978	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.111	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	57.16	90% Percentile (z)	28.61
	95% UPL (t)	38.58	95% Percentile (z)	35.46
	95% USL	58.91	99% Percentile (z)	53.04

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	35.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	35.4	95% BCA Bootstrap UTL with 95% Coverage	35.4
95% UPL	35.4	90% Percentile	27.24
90% Chebyshev UPL	42.45	95% Percentile	29.54
95% Chebyshev UPL	54.58	99% Percentile	34.23
95% USL	35.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	15		
Number of Detects	5	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	11
Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	80.4	Maximum Non-Detect	2.5
Variance Detected	1127	Percent Non-Detects	72.22%
Mean Detected	20.38	SD Detected	33.57
Mean of Detected Logged Data	2.21	SD of Detected Logged Data	1.23

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.579	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.457	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	6.456	KM SD	18.03
95% UTL95% Coverage	50.67	95% KM UPL (t)	38.67
90% KM Percentile (z)	29.56	95% KM Percentile (z)	36.11
99% KM Percentile (z)	48.39	95% KM USL	51.59

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	6.3	SD	18.6
95% UTL95% Coverage	51.92	95% UPL (t)	39.54
90% Percentile (z)	30.13	95% Percentile (z)	36.89
99% Percentile (z)	49.56	95% USL	52.87

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.071	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.699	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.452	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.367	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.745	k star (bias corrected MLE)	0.431
Theta hat (MLE)	27.36	Theta star (bias corrected MLE)	47.26
nu hat (MLE)	7.448	nu star (bias corrected)	4.313
MLE Mean (bias corrected)	20.38		
MLE Sd (bias corrected)	31.03	95% Percentile of Chisquare (2kstar)	3.491

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	5.668
Maximum	80.4	Median	0.01
SD	18.79	CV	3.316
k hat (MLE)	0.17	k star (bias corrected MLE)	0.178
Theta hat (MLE)	33.4	Theta star (bias corrected MLE)	31.76
nu hat (MLE)	6.109	nu star (bias corrected)	6.425
MLE Mean (bias corrected)	5.668	MLE Sd (bias corrected)	13.42
95% Percentile of Chisquare (2kstar)	1.892	90% Percentile	17.09
95% Percentile	30.05	99% Percentile	66.43

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	41.84	45.69	95% Approx. Gamma UPL	20.62	19.19
95% Gamma USL	43.9	48.48			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	6.456	SD (KM)	18.03
Variance (KM)	324.9	SE of Mean (KM)	4.75
k hat (KM)	0.128	k star (KM)	0.144
nu hat (KM)	4.617	nu star (KM)	5.181
theta hat (KM)	50.34	theta star (KM)	44.86
80% gamma percentile (KM)	6.785	90% gamma percentile (KM)	19.02
95% gamma percentile (KM)	35.81	99% gamma percentile (KM)	84.94

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	34.98	33.25	95% Approx. Gamma UPL	20.93	18.97
95% KM Gamma Percentile	18.51	16.64	95% Gamma USL	36.27	34.61

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.686	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.394	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.319	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	5.759	Mean in Log Scale	-0.951
SD in Original Scale	18.77	SD in Log Scale	2.164
95% UTL95% Coverage	78.09	95% BCA UTL95% Coverage	80.4
95% Bootstrap (%) UTL95% Coverage	80.4	95% UPL (t)	18.49
90% Percentile (z)	6.189	95% Percentile (z)	13.58
99% Percentile (z)	59.37	95% USL	87.2

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.683	95% KM UTL (Lognormal)95% Coverage	30.18
KM SD of Logged Data	1.111	95% KM UPL (Lognormal)	14.41
95% KM Percentile Lognormal (z)	12.3	95% KM USL (Lognormal)	31.93

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	6.3	Mean in Log Scale	0.506
SD in Original Scale	18.6	SD in Log Scale	1.257
95% UTL95% Coverage	36.2	95% UPL (t)	15.68
90% Percentile (z)	8.305	95% Percentile (z)	13.11
99% Percentile (z)	30.87	95% USL	38.6

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	80.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	80.4
95% USL	80.4	95% KM Chebyshev UPL	87.18

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	15		
Number of Detects	5	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	11
Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	80.4	Maximum Non-Detect	2.5
Variance Detected	1127	Percent Non-Detects	72.22%
Mean Detected	20.38	SD Detected	33.57
Mean of Detected Logged Data	2.21	SD of Detected Logged Data	1.23

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.579	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.457	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	6.456	KM SD	18.03
95% UTL95% Coverage	50.67	95% KM UPL (t)	38.67
90% KM Percentile (z)	29.56	95% KM Percentile (z)	36.11
99% KM Percentile (z)	48.39	95% KM USL	51.59

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	6.3	SD	18.6
95% UTL95% Coverage	51.92	95% UPL (t)	39.54
90% Percentile (z)	30.13	95% Percentile (z)	36.89
99% Percentile (z)	49.56	95% USL	52.87

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.071	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.699	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.452	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.367	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.745	k star (bias corrected MLE)	0.431
Theta hat (MLE)	27.36	Theta star (bias corrected MLE)	47.26
nu hat (MLE)	7.448	nu star (bias corrected)	4.313
MLE Mean (bias corrected)	20.38		
MLE Sd (bias corrected)	31.03	95% Percentile of Chisquare (2kstar)	3.491

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	5.668
Maximum	80.4	Median	0.01
SD	18.79	CV	3.316
k hat (MLE)	0.17	k star (bias corrected MLE)	0.178
Theta hat (MLE)	33.4	Theta star (bias corrected MLE)	31.76
nu hat (MLE)	6.109	nu star (bias corrected)	6.425
MLE Mean (bias corrected)	5.668	MLE Sd (bias corrected)	13.42
95% Percentile of Chisquare (2kstar)	1.892	90% Percentile	17.09
95% Percentile	30.05	99% Percentile	66.43

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	41.84	45.69	95% Approx. Gamma UPL	20.62	19.19
95% Gamma USL	43.9	48.48			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	6.456	SD (KM)	18.03
Variance (KM)	324.9	SE of Mean (KM)	4.75
k hat (KM)	0.128	k star (KM)	0.144
nu hat (KM)	4.617	nu star (KM)	5.181
theta hat (KM)	50.34	theta star (KM)	44.86
80% gamma percentile (KM)	6.785	90% gamma percentile (KM)	19.02
95% gamma percentile (KM)	35.81	99% gamma percentile (KM)	84.94

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	34.98	33.25	95% Approx. Gamma UPL	20.93	18.97
95% KM Gamma Percentile	18.51	16.64	95% Gamma USL	36.27	34.61

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.686	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.394	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.319	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	5.759	Mean in Log Scale	-0.951
SD in Original Scale	18.77	SD in Log Scale	2.164
95% UTL95% Coverage	78.09	95% BCA UTL95% Coverage	80.4
95% Bootstrap (%) UTL95% Coverage	80.4	95% UPL (t)	18.49
90% Percentile (z)	6.189	95% Percentile (z)	13.58
99% Percentile (z)	59.37	95% USL	87.2

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.683	95% KM UTL (Lognormal)95% Coverage	30.18
KM SD of Logged Data	1.111	95% KM UPL (Lognormal)	14.41
95% KM Percentile Lognormal (z)	12.3	95% KM USL (Lognormal)	31.93

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	6.3	Mean in Log Scale	0.506
SD in Original Scale	18.6	SD in Log Scale	1.257
95% UTL95% Coverage	36.2	95% UPL (t)	15.68
90% Percentile (z)	8.305	95% Percentile (z)	13.11
99% Percentile (z)	30.87	95% USL	38.6

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	80.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	80.4
95% USL	80.4	95% KM Chebyshev UPL	87.18

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	15		
Number of Detects	5	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	11

Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	80.4	Maximum Non-Detect	2.5
Variance Detected	1127	Percent Non-Detects	72.22%
Mean Detected	20.38	SD Detected	33.57
Mean of Detected Logged Data	2.21	SD of Detected Logged Data	1.23

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.579	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.686	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.457	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.396	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	6.456	KM SD	18.03
95% UTL95% Coverage	50.67	95% KM UPL (t)	38.67
90% KM Percentile (z)	29.56	95% KM Percentile (z)	36.11
99% KM Percentile (z)	48.39	95% KM USL	51.59

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	6.3	SD	18.6
95% UTL95% Coverage	51.92	95% UPL (t)	39.54
90% Percentile (z)	30.13	95% Percentile (z)	36.89
99% Percentile (z)	49.56	95% USL	52.87

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.071	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.699	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.452	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.367	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.745	k star (bias corrected MLE)	0.431
Theta hat (MLE)	27.36	Theta star (bias corrected MLE)	47.26
nu hat (MLE)	7.448	nu star (bias corrected)	4.313
MLE Mean (bias corrected)	20.38		
MLE Sd (bias corrected)	31.03	95% Percentile of Chisquare (2kstar)	3.491

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	5.668
Maximum	80.4	Median	0.01
SD	18.79	CV	3.316
k hat (MLE)	0.17	k star (bias corrected MLE)	0.178
Theta hat (MLE)	33.4	Theta star (bias corrected MLE)	31.76
nu hat (MLE)	6.109	nu star (bias corrected)	6.425
MLE Mean (bias corrected)	5.668	MLE Sd (bias corrected)	13.42
95% Percentile of Chisquare (2kstar)	1.892	90% Percentile	17.09

95% Percentile	30.05	99% Percentile	66.43

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	41.84	45.69	95% Approx. Gamma UPL	20.62	19.19
95% Gamma USL	43.9	48.48			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	6.456	SD (KM)	18.03
Variance (KM)	324.9	SE of Mean (KM)	4.75
k hat (KM)	0.128	k star (KM)	0.144
nu hat (KM)	4.617	nu star (KM)	5.181
theta hat (KM)	50.34	theta star (KM)	44.86
80% gamma percentile (KM)	6.785	90% gamma percentile (KM)	19.02
95% gamma percentile (KM)	35.81	99% gamma percentile (KM)	84.94

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	34.98	33.25	95% Approx. Gamma UPL	20.93	18.97
95% KM Gamma Percentile	18.51	16.64	95% Gamma USL	36.27	34.61

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.686	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.394	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.319	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	5.759	Mean in Log Scale	-0.951
SD in Original Scale	18.77	SD in Log Scale	2.164
95% UTL95% Coverage	78.09	95% BCA UTL95% Coverage	80.4
95% Bootstrap (%) UTL95% Coverage	80.4	95% UPL (t)	18.49
90% Percentile (z)	6.189	95% Percentile (z)	13.58
99% Percentile (z)	59.37	95% USL	87.2

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.683	95% KM UTL (Lognormal)95% Coverage	30.18
KM SD of Logged Data	1.111	95% KM UPL (Lognormal)	14.41
95% KM Percentile Lognormal (z)	12.3	95% KM USL (Lognormal)	31.93

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	6.3	Mean in Log Scale	0.506
SD in Original Scale	18.6	SD in Log Scale	1.257
95% UTL95% Coverage	36.2	95% UPL (t)	15.68
90% Percentile (z)	8.305	95% Percentile (z)	13.11
99% Percentile (z)	30.87	95% USL	38.6

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	80.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	80.4

95% USL	80.4	95% KM Chebyshev UPL	87.18

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	14
Minimum	0.0092	First Quartile	0.0158
Second Largest	0.072	Median	0.0205
Maximum	1.1	Third Quartile	0.0543
Mean	0.0891	SD	0.253
Coefficient of Variation	2.84	Skewness	4.198
Mean of logged Data	-3.52	SD of logged Data	1.109

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.316	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.471	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.71	90% Percentile (z)	0.413
	95% UPL (t)	0.541	95% Percentile (z)	0.505
	95% USL	0.723	99% Percentile (z)	0.678

Gamma GOF Test

A-D Test Statistic	2.929	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.794	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.327	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.214	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.566	k star (bias corrected MLE)	0.508
Theta hat (MLE)	0.158	Theta star (bias corrected MLE)	0.175
nu hat (MLE)	20.37	nu star (bias corrected)	18.3
MLE Mean (bias corrected)	0.0891	MLE Sd (bias corrected)	0.125

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.298	90% Percentile	0.24
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.272	95% Percentile	0.34
95% WH Approx. Gamma UTL with 95% Coverage	0.496	99% Percentile	0.586
95% HW Approx. Gamma UTL with 95% Coverage	0.473		
95% WH USL	0.514	95% HW USL	0.493

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.792	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	

Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.45	90% Percentile (z)		0.123
	95% UPL (t)	0.215	95% Percentile (z)		0.184
	95% USL	0.476	99% Percentile (z)		0.391

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	1.1
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	1.1	95% BCA Bootstrap UTL with	95% Coverage	1.1
	95% UPL	1.1		90% Percentile	0.065
	90% Chebyshev UPL	0.869		95% Percentile	0.226
	95% Chebyshev UPL	1.223		99% Percentile	0.925
	95% USL	1.1			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	13
Minimum	0.0069	First Quartile	0.00955
Second Largest	0.042	Median	0.0125
Maximum	0.5	Third Quartile	0.0235
Mean	0.0432	SD	0.114
Coefficient of Variation	2.649	Skewness	4.187
Mean of logged Data	-4.069	SD of logged Data	0.991

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.319	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.449	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.324	90% Percentile (z)		0.19
	95% UPL (t)	0.248	95% Percentile (z)		0.231
	95% USL	0.33	99% Percentile (z)		0.309

Gamma GOF Test

A-D Test Statistic	3.328	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.786	Data Not Gamma Distributed at 5% Significance Level	

K-S Test Statistic	0.323	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.213	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.658	k star (bias corrected MLE)	0.585
Theta hat (MLE)	0.0657	Theta star (bias corrected MLE)	0.0738
nu hat (MLE)	23.67	nu star (bias corrected)	21.06
MLE Mean (bias corrected)	0.0432	MLE Sd (bias corrected)	0.0565

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.141	90% Percentile	0.113
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.129	95% Percentile	0.157
95% WH Approx. Gamma UTL with 95% Coverage	0.229	99% Percentile	0.263
95% HW Approx. Gamma UTL with 95% Coverage	0.218		
95% WH USL	0.237	95% HW USL	0.226

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.715	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.249	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.195	90% Percentile (z)	0.0609
95% UPL (t)	0.101	95% Percentile (z)	0.0873
95% USL	0.205	99% Percentile (z)	0.172

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.5
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.5	95% BCA Bootstrap UTL with 95% Coverage	0.5
95% UPL	0.5	90% Percentile	0.0357
90% Chebyshev UPL	0.396	95% Percentile	0.111
95% Chebyshev UPL	0.556	99% Percentile	0.422
95% USL	0.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	14
Minimum	0.0092	First Quartile	0.0158
Second Largest	0.072	Median	0.0205
Maximum	1.1	Third Quartile	0.0543
Mean	0.0891	SD	0.253
Coefficient of Variation	2.84	Skewness	4.198

Mean of logged Data	-3.52	SD of logged Data	1.109

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.316	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.471	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.71	90% Percentile (z)	0.413
	95% UPL (t)	0.541	95% Percentile (z)	0.505
	95% USL	0.723	99% Percentile (z)	0.678

Gamma GOF Test

A-D Test Statistic	2.929	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.794	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.327	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.566	k star (bias corrected MLE)	0.508
Theta hat (MLE)	0.158	Theta star (bias corrected MLE)	0.175
nu hat (MLE)	20.37	nu star (bias corrected)	18.3
MLE Mean (bias corrected)	0.0891	MLE Sd (bias corrected)	0.125

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.298	90% Percentile	0.24
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.272	95% Percentile	0.34
95% WH Approx. Gamma UTL with	95% Coverage	0.496	99% Percentile	0.586
95% HW Approx. Gamma UTL with	95% Coverage	0.473		
	95% WH USL	0.514	95% HW USL	0.493

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.792	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.45	90% Percentile (z)	0.123
	95% UPL (t)	0.215	95% Percentile (z)	0.184
	95% USL	0.476	99% Percentile (z)	0.391

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	1.1
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	1.1	95% BCA Bootstrap UTL with 95% Coverage	1.1

95% UPL	1.1	90% Percentile	0.065
90% Chebyshev UPL	0.869	95% Percentile	0.226
95% Chebyshev UPL	1.223	99% Percentile	0.925
95% USL	1.1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	14
Minimum	0.0092	First Quartile	0.0158
Second Largest	0.072	Median	0.0205
Maximum	1.1	Third Quartile	0.0543
Mean	0.0891	SD	0.253
Coefficient of Variation	2.84	Skewness	4.198
Mean of logged Data	-3.52	SD of logged Data	1.109

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.316	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.471	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.71	90% Percentile (z)	0.413
	95% UPL (t)	0.541	95% Percentile (z)	0.505
	95% USL	0.723	99% Percentile (z)	0.678

Gamma GOF Test

A-D Test Statistic	2.929	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.794	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.327	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.566	k star (bias corrected MLE)	0.508
Theta hat (MLE)	0.158	Theta star (bias corrected MLE)	0.175
nu hat (MLE)	20.37	nu star (bias corrected)	18.3
MLE Mean (bias corrected)	0.0891	MLE Sd (bias corrected)	0.125

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.298	90% Percentile	0.24
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.272	95% Percentile	0.34
95% WH Approx. Gamma UTL with	95% Coverage	0.496	99% Percentile	0.586
95% HW Approx. Gamma UTL with	95% Coverage	0.473		
	95% WH USL	0.514	95% HW USL	0.493

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.792	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.45	90% Percentile (z)		0.123
	95% UPL (t)	0.215	95% Percentile (z)		0.184
	95% USL	0.476	99% Percentile (z)		0.391

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	18	95% UTL with	95% Coverage	1.1
	Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	1.1	95% BCA Bootstrap UTL with	95% Coverage	1.1
	95% UPL	1.1		90% Percentile	0.065
	90% Chebyshev UPL	0.869		95% Percentile	0.226
	95% Chebyshev UPL	1.223		99% Percentile	0.925
	95% USL	1.1			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0069	First Quartile	0.0115
Second Largest	0.054	Median	0.0155
Maximum	0.81	Third Quartile	0.0405
Mean	0.0663	SD	0.186
Coefficient of Variation	2.807	Skewness	4.195
Mean of logged Data	-3.794	SD of logged Data	1.103

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.318	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.471	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.523	90% Percentile (z)		0.305
	95% UPL (t)	0.399	95% Percentile (z)		0.373
	95% USL	0.533	99% Percentile (z)		0.5

Gamma GOF Test

A-D Test Statistic	2.868	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.793	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.327	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.575	k star (bias corrected MLE)	0.516
Theta hat (MLE)	0.115	Theta star (bias corrected MLE)	0.128
nu hat (MLE)	20.71	nu star (bias corrected)	18.59
MLE Mean (bias corrected)	0.0663	MLE Sd (bias corrected)	0.0923

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.222	90% Percentile	0.178
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.203	95% Percentile	0.252
95% WH Approx. Gamma UTL with 95% Coverage	0.368	99% Percentile	0.432
95% HW Approx. Gamma UTL with 95% Coverage	0.352		
95% WH USL	0.381	95% HW USL	0.366

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.799	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.177	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.337	90% Percentile (z)	0.0926
95% UPL (t)	0.162	95% Percentile (z)	0.138
95% USL	0.357	99% Percentile (z)	0.293

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.81
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.81	95% BCA Bootstrap UTL with 95% Coverage	0.81
95% UPL	0.81	90% Percentile	0.0505
90% Chebyshev UPL	0.64	95% Percentile	0.167
95% Chebyshev UPL	0.9	99% Percentile	0.681
95% USL	0.81		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Table C3-7
ProUCL Output for Porewater BTVs and BTV HQs, Approach D
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 1/30/2024 3:05:43 PM
From File	pw_utl_input_base_ph3_outlier.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

concDL (alkalinity_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
Minimum	47	First Quartile	55.25
Second Largest	111	Median	61.5
Maximum	117	Third Quartile	78.25
Mean	71.5	SD	22.39
Coefficient of Variation	0.313	Skewness	1.015
Mean of logged Data	4.228	SD of logged Data	0.289

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.838	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.227	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	126.4	90% Percentile (z)	100.2
	95% UPL (t)	111.5	95% Percentile (z)	108.3
	95% USL	127.6	99% Percentile (z)	123.6

Gamma GOF Test

A-D Test Statistic	1.014	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.229	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	12.21	k star (bias corrected MLE)	10.21

Theta hat (MLE)	5.856	Theta star (bias corrected MLE)	7.001
nu hat (MLE)	439.6	nu star (bias corrected)	367.6
MLE Mean (bias corrected)	71.5	MLE Sd (bias corrected)	22.37

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	113.4	90% Percentile	101.3
95% Hawkins Wixley (HW) Approx. Gamma UPL	113.7	95% Percentile	111.8
95% WH Approx. Gamma UTL with 95% Coverage	133.6	99% Percentile	133.5
95% HW Approx. Gamma UTL with 95% Coverage	134.8		
95% WH USL	135.2	95% HW USL	136.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.886	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.219	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	139.2	90% Percentile (z)	99.29
95% UPL (t)	114.9	95% Percentile (z)	110.3
95% USL	141.3	99% Percentile (z)	134.2

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	117
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	117	95% BCA Bootstrap UTL with 95% Coverage	117
95% UPL	117	90% Percentile	106.8
90% Chebyshev UPL	140.5	95% Percentile	111.9
95% Chebyshev UPL	171.8	99% Percentile	116
95% USL	117		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	12
Minimum Detect	59.2	Minimum Non-Detect	4
Maximum Detect	76.6	Maximum Non-Detect	27.9
Variance Detected	52.91	Percent Non-Detects	76.47%
Mean Detected	66.63	SD Detected	7.274
Mean of Detected Logged Data	4.195	SD of Detected Logged Data	0.107

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.284	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	18.74	KM SD	26.74
95% UTL95% Coverage	85.21	95% KM UPL (t)	66.77
90% KM Percentile (z)	53	95% KM Percentile (z)	62.72
99% KM Percentile (z)	80.94	95% KM USL	84.91

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	20.2	SD	26.98
95% UTL95% Coverage	87.26	95% UPL (t)	68.66
90% Percentile (z)	54.77	95% Percentile (z)	64.57
99% Percentile (z)	82.95	95% USL	86.96

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.31	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.278	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	115.2	k star (bias corrected MLE)	28.97
Theta hat (MLE)	0.578	Theta star (bias corrected MLE)	2.3
nu hat (MLE)	921.7	nu star (bias corrected)	231.8
MLE Mean (bias corrected)	66.63		

MLE Sd (bias corrected)	12.38	95% Percentile of Chisquare (2kstar)	76.71

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	29.37	Mean	43.25
Maximum	76.6	Median	36.09
SD	13.92	CV	0.322
k hat (MLE)	12.54	k star (bias corrected MLE)	10.37
Theta hat (MLE)	3.448	Theta star (bias corrected MLE)	4.172
nu hat (MLE)	426.4	nu star (bias corrected)	352.5
MLE Mean (bias corrected)	43.25	MLE Sd (bias corrected)	13.43
95% Percentile of Chisquare (2kstar)	32.34	90% Percentile	61.1
95% Percentile	67.45	99% Percentile	80.45

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	80.88	81.39	95% Approx. Gamma UPL	68.4	68.44
95% Gamma USL	80.66	81.16			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	18.74	SD (KM)	26.74
Variance (KM)	715	SE of Mean (KM)	7.489
k hat (KM)	0.491	k star (KM)	0.444
nu hat (KM)	16.69	nu star (KM)	15.08
theta hat (KM)	38.16	theta star (KM)	42.24
80% gamma percentile (KM)	30.54	90% gamma percentile (KM)	51.92
95% gamma percentile (KM)	75.09	99% gamma percentile (KM)	132.7

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	108.4	114.9	95% Approx. Gamma UPL	66.27	66.19
95% KM Gamma Percentile	58.77	57.99	95% Gamma USL	107.6	114

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.949	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.269	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	47.34	Mean in Log Scale	3.834
SD in Original Scale	11.57	SD in Log Scale	0.215
95% UTL95% Coverage	78.86	95% BCA UTL95% Coverage	76.6
95% Bootstrap (%) UTL95% Coverage	76.6	95% UPL (t)	68
90% Percentile (z)	60.88	95% Percentile (z)	65.82
99% Percentile (z)	76.2	95% USL	78.67

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.047	95% KM UTL (Lognormal)95% Coverage	150
KM SD of Logged Data	1.192	95% KM UPL (Lognormal)	65.94
95% KM Percentile Lognormal (z)	55.04	95% KM USL (Lognormal)	148

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	20.2	Mean in Log Scale	2.192
SD in Original Scale	26.98	SD in Log Scale	1.273
95% UTL95% Coverage	212.1	95% UPL (t)	88.15
90% Percentile (z)	45.76	95% Percentile (z)	72.67
99% Percentile (z)	173.1	95% USL	209.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	76.6
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	76.6
95% USL	76.6	95% KM Chebyshev UPL	138.7

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	12
Minimum Detect	59.2	Minimum Non-Detect	4
Maximum Detect	76.6	Maximum Non-Detect	27.9

Variance Detected	52.91	Percent Non-Detects	76.47%
Mean Detected	66.63	SD Detected	7.274
Mean of Detected Logged Data	4.195	SD of Detected Logged Data	0.107

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.284	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	18.74	KM SD	26.74
95% UTL95% Coverage	85.21	95% KM UPL (t)	66.77
90% KM Percentile (z)	53	95% KM Percentile (z)	62.72
99% KM Percentile (z)	80.94	95% KM USL	84.91

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	20.2	SD	26.98
95% UTL95% Coverage	87.26	95% UPL (t)	68.66
90% Percentile (z)	54.77	95% Percentile (z)	64.57
99% Percentile (z)	82.95	95% USL	86.96

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.31	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.278	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	115.2	k star (bias corrected MLE)	28.97
Theta hat (MLE)	0.578	Theta star (bias corrected MLE)	2.3
nu hat (MLE)	921.7	nu star (bias corrected)	231.8
MLE Mean (bias corrected)	66.63		
MLE Sd (bias corrected)	12.38	95% Percentile of Chisquare (2kstar)	76.71

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	29.37	Mean	43.25
Maximum	76.6	Median	36.09
SD	13.92	CV	0.322
k hat (MLE)	12.54	k star (bias corrected MLE)	10.37
Theta hat (MLE)	3.448	Theta star (bias corrected MLE)	4.172
nu hat (MLE)	426.4	nu star (bias corrected)	352.5
MLE Mean (bias corrected)	43.25	MLE Sd (bias corrected)	13.43
95% Percentile of Chisquare (2kstar)	32.34	90% Percentile	61.1
95% Percentile	67.45	99% Percentile	80.45

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	80.88	81.39	95% Approx. Gamma UPL	68.4	68.44
95% Gamma USL	80.66	81.16			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	18.74	SD (KM)	26.74
Variance (KM)	715	SE of Mean (KM)	7.489
k hat (KM)	0.491	k star (KM)	0.444
nu hat (KM)	16.69	nu star (KM)	15.08
theta hat (KM)	38.16	theta star (KM)	42.24
80% gamma percentile (KM)	30.54	90% gamma percentile (KM)	51.92
95% gamma percentile (KM)	75.09	99% gamma percentile (KM)	132.7

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	108.4	114.9	95% Approx. Gamma UPL	66.27	66.19
95% KM Gamma Percentile	58.77	57.99	95% Gamma USL	107.6	114

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.949	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.269	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	47.34	Mean in Log Scale	3.834
SD in Original Scale	11.57	SD in Log Scale	0.215
95% UTL95% Coverage	78.86	95% BCA UTL95% Coverage	76.6
95% Bootstrap (%) UTL95% Coverage	76.6	95% UPL (t)	68
90% Percentile (z)	60.88	95% Percentile (z)	65.82

99% Percentile (z)	76.2	95% USL	78.67

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.047	95% KM UTL (Lognormal)95% Coverage	150
KM SD of Logged Data	1.192	95% KM UPL (Lognormal)	65.94
95% KM Percentile Lognormal (z)	55.04	95% KM USL (Lognormal)	148

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	20.2	Mean in Log Scale	2.192
SD in Original Scale	26.98	SD in Log Scale	1.273
95% UTL95% Coverage	212.1	95% UPL (t)	88.15
90% Percentile (z)	45.76	95% Percentile (z)	72.67
99% Percentile (z)	173.1	95% USL	209.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	76.6
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	76.6
95% USL	76.6	95% KM Chebyshev UPL	138.7

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	12
Minimum Detect	59.2	Minimum Non-Detect	4
Maximum Detect	76.6	Maximum Non-Detect	27.9
Variance Detected	52.91	Percent Non-Detects	76.47%
Mean Detected	66.63	SD Detected	7.274
Mean of Detected Logged Data	4.195	SD of Detected Logged Data	0.107

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.284	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	18.74	KM SD	26.74
95% UTL95% Coverage	85.21	95% KM UPL (t)	66.77
90% KM Percentile (z)	53	95% KM Percentile (z)	62.72
99% KM Percentile (z)	80.94	95% KM USL	84.91

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	20.2	SD	26.98
95% UTL95% Coverage	87.26	95% UPL (t)	68.66
90% Percentile (z)	54.77	95% Percentile (z)	64.57
99% Percentile (z)	82.95	95% USL	86.96

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.31	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.278	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	115.2	k star (bias corrected MLE)	28.97
Theta hat (MLE)	0.578	Theta star (bias corrected MLE)	2.3
nu hat (MLE)	921.7	nu star (bias corrected)	231.8
MLE Mean (bias corrected)	66.63		
MLE Sd (bias corrected)	12.38	95% Percentile of Chisquare (2kstar)	76.71

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	29.37	Mean	43.25
Maximum	76.6	Median	36.09
SD	13.92	CV	0.322
k hat (MLE)	12.54	k star (bias corrected MLE)	10.37

Theta hat (MLE)	3.448	Theta star (bias corrected MLE)	4.172
nu hat (MLE)	426.4	nu star (bias corrected)	352.5
MLE Mean (bias corrected)	43.25	MLE Sd (bias corrected)	13.43
95% Percentile of Chisquare (2kstar)	32.34	90% Percentile	61.1
95% Percentile	67.45	99% Percentile	80.45

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	80.88	81.39	95% Approx. Gamma UPL	68.4	68.44
95% Gamma USL	80.66	81.16			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	18.74	SD (KM)	26.74
Variance (KM)	715	SE of Mean (KM)	7.489
k hat (KM)	0.491	k star (KM)	0.444
nu hat (KM)	16.69	nu star (KM)	15.08
theta hat (KM)	38.16	theta star (KM)	42.24
80% gamma percentile (KM)	30.54	90% gamma percentile (KM)	51.92
95% gamma percentile (KM)	75.09	99% gamma percentile (KM)	132.7

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	108.4	114.9	95% Approx. Gamma UPL	66.27	66.19
95% KM Gamma Percentile	58.77	57.99	95% Gamma USL	107.6	114

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.949	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.269	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	47.34	Mean in Log Scale	3.834
SD in Original Scale	11.57	SD in Log Scale	0.215
95% UTL95% Coverage	78.86	95% BCA UTL95% Coverage	76.6
95% Bootstrap (%) UTL95% Coverage	76.6	95% UPL (t)	68
90% Percentile (z)	60.88	95% Percentile (z)	65.82
99% Percentile (z)	76.2	95% USL	78.67

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.047	95% KM UTL (Lognormal)95% Coverage	150
KM SD of Logged Data	1.192	95% KM UPL (Lognormal)	65.94
95% KM Percentile Lognormal (z)	55.04	95% KM USL (Lognormal)	148

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	20.2	Mean in Log Scale	2.192
SD in Original Scale	26.98	SD in Log Scale	1.273
95% UTL95% Coverage	212.1	95% UPL (t)	88.15
90% Percentile (z)	45.76	95% Percentile (z)	72.67
99% Percentile (z)	173.1	95% USL	209.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	76.6
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	76.6
95% USL	76.6	95% KM Chebyshev UPL	138.7

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.012	First Quartile	0.022
Second Largest	0.27	Median	0.041
Maximum	0.43	Third Quartile	0.168
Mean	0.1	SD	0.118
Coefficient of Variation	1.181	Skewness	1.627
Mean of logged Data	-2.922	SD of logged Data	1.132

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.75	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.318	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.39		90% Percentile (z)	0.251
	95% UPL (t)	0.311		95% Percentile (z)	0.294
	95% USL	0.396		99% Percentile (z)	0.375

Gamma GOF Test

A-D Test Statistic	1.05	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.238	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.939	k star (bias corrected MLE)	0.82
Theta hat (MLE)	0.106	Theta star (bias corrected MLE)	0.122
nu hat (MLE)	33.81	nu star (bias corrected)	29.51
MLE Mean (bias corrected)	0.1	MLE Sd (bias corrected)	0.11

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.337	90% Percentile	0.242
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.348	95% Percentile	0.322
95% WH Approx. Gamma UTL with 95% Coverage	0.52	99% Percentile	0.51
95% HW Approx. Gamma UTL with 95% Coverage	0.566		
95% WH USL	0.537	95% HW USL	0.586

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.865		90% Percentile (z)	0.23
	95% UPL (t)	0.407		95% Percentile (z)	0.347
	95% USL	0.917		99% Percentile (z)	0.75

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18		95% UTL with	95% Coverage	0.43
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL			0.603
		Approximate Sample Size needed to achieve specified CC			59
95% Percentile Bootstrap UTL with	95% Coverage	0.43	95% BCA Bootstrap UTL with	95% Coverage	0.43

95% UPL	0.43	90% Percentile	0.249
90% Chebyshev UPL	0.464	95% Percentile	0.294
95% Chebyshev UPL	0.629	99% Percentile	0.403
95% USL	0.43		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	13
Minimum	9.8000E-4	First Quartile	0.0016
Second Largest	0.016	Median	0.0029
Maximum	0.019	Third Quartile	0.0068
Mean	0.00602	SD	0.00618
Coefficient of Variation	1.025	Skewness	1.176
Mean of logged Data	-5.601	SD of logged Data	1.013

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.764	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.276	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0214	90% Percentile (z)	0.0139
	95% UPL (t)	0.0171	95% Percentile (z)	0.0162
	95% USL	0.0213	99% Percentile (z)	0.0204

Gamma GOF Test

A-D Test Statistic	1.005	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.763	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.224	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.161	k star (bias corrected MLE)	0.995
Theta hat (MLE)	0.00519	Theta star (bias corrected MLE)	0.00605
nu hat (MLE)	39.46	nu star (bias corrected)	33.83
MLE Mean (bias corrected)	0.00602	MLE Sd (bias corrected)	0.00604

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0191	90% Percentile	0.0139
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0197	95% Percentile	0.0181
95% WH Approx. Gamma UTL with 95% Coverage	0.029	99% Percentile	0.0278
95% HW Approx. Gamma UTL with 95% Coverage	0.0314		
95% WH USL	0.0288	95% HW USL	0.0311

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.893	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0458	90% Percentile (z)	0.0135
95% UPL (t)	0.0228	95% Percentile (z)	0.0195
95% USL	0.0453	99% Percentile (z)	0.039

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.019
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.019	95% BCA Bootstrap UTL with 95% Coverage	0.019
95% UPL	0.019	90% Percentile	0.016
90% Chebyshev UPL	0.0251	95% Percentile	0.0166
95% Chebyshev UPL	0.0337	99% Percentile	0.0185
95% USL	0.019		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.012	First Quartile	0.022
Second Largest	0.27	Median	0.041
Maximum	0.43	Third Quartile	0.168
Mean	0.1	SD	0.118
Coefficient of Variation	1.181	Skewness	1.627
Mean of logged Data	-2.922	SD of logged Data	1.132

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.75	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.318	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.39	90% Percentile (z)	0.251
	95% UPL (t)	0.311	95% Percentile (z)	0.294
	95% USL	0.396	99% Percentile (z)	0.375

Gamma GOF Test

A-D Test Statistic	1.05	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.238	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.939	k star (bias corrected MLE)	0.82
Theta hat (MLE)	0.106	Theta star (bias corrected MLE)	0.122
nu hat (MLE)	33.81	nu star (bias corrected)	29.51
MLE Mean (bias corrected)	0.1	MLE Sd (bias corrected)	0.11

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.337	90% Percentile	0.242
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.348	95% Percentile	0.322
95% WH Approx. Gamma UTL with	95% Coverage	0.52	99% Percentile	0.51
95% HW Approx. Gamma UTL with	95% Coverage	0.566		
	95% WH USL	0.537	95% HW USL	0.586

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.865	90% Percentile (z)	0.23
95% UPL (t)	0.407	95% Percentile (z)	0.347
95% USL	0.917	99% Percentile (z)	0.75

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.43
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.43	95% BCA Bootstrap UTL with 95% Coverage	0.43
95% UPL	0.43	90% Percentile	0.249
90% Chebyshev UPL	0.464	95% Percentile	0.294
95% Chebyshev UPL	0.629	99% Percentile	0.403
95% USL	0.43		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	0.012	First Quartile	0.022
Second Largest	0.27	Median	0.041
Maximum	0.43	Third Quartile	0.168
Mean	0.1	SD	0.118
Coefficient of Variation	1.181	Skewness	1.627
Mean of logged Data	-2.922	SD of logged Data	1.132

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.75	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.318	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.39	90% Percentile (z)	0.251
	95% UPL (t)	0.311	95% Percentile (z)	0.294
	95% USL	0.396	99% Percentile (z)	0.375

Gamma GOF Test

A-D Test Statistic	1.05	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.238	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.939	k star (bias corrected MLE)	0.82
Theta hat (MLE)	0.106	Theta star (bias corrected MLE)	0.122
nu hat (MLE)	33.81	nu star (bias corrected)	29.51
MLE Mean (bias corrected)	0.1	MLE Sd (bias corrected)	0.11

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.337	90% Percentile	0.242
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.348	95% Percentile	0.322
95% WH Approx. Gamma UTL with 95% Coverage	0.52	99% Percentile	0.51
95% HW Approx. Gamma UTL with 95% Coverage	0.566		
95% WH USL	0.537	95% HW USL	0.586

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.865	90% Percentile (z)	0.23
	95% UPL (t)	0.407	95% Percentile (z)	0.347
	95% USL	0.917	99% Percentile (z)	0.75

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.43
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.43	95% BCA Bootstrap UTL with 95% Coverage	0.43
95% UPL	0.43	90% Percentile	0.249
90% Chebyshev UPL	0.464	95% Percentile	0.294
95% Chebyshev UPL	0.629	99% Percentile	0.403
95% USL	0.43		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	11
Minimum Detect	0.311	Minimum Non-Detect	0.076
Maximum Detect	0.663	Maximum Non-Detect	0.249
Variance Detected	0.0203	Percent Non-Detects	66.67%
Mean Detected	0.45	SD Detected	0.142
Mean of Detected Logged Data	-0.838	SD of Detected Logged Data	0.3

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.848	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.201	KM SD	0.192
95% UTL95% Coverage	0.671	95% KM UPL (t)	0.543
90% KM Percentile (z)	0.446	95% KM Percentile (z)	0.516
99% KM Percentile (z)	0.646	95% KM USL	0.681

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.217	SD	0.188
95% UTL95% Coverage	0.677	95% UPL (t)	0.552
90% Percentile (z)	0.457	95% Percentile (z)	0.525
99% Percentile (z)	0.653	95% USL	0.686

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.518	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.316	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.99	k star (bias corrected MLE)	6.605
Theta hat (MLE)	0.0346	Theta star (bias corrected MLE)	0.0681
nu hat (MLE)	155.8	nu star (bias corrected)	79.26
MLE Mean (bias corrected)	0.45		
MLE Sd (bias corrected)	0.175	95% Percentile of Chisquare (2kstar)	22.64

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.166
Maximum	0.663	Median	0.0176
SD	0.222	CV	1.339
k hat (MLE)	0.562	k star (bias corrected MLE)	0.505
Theta hat (MLE)	0.295	Theta star (bias corrected MLE)	0.328
nu hat (MLE)	20.21	nu star (bias corrected)	18.18
MLE Mean (bias corrected)	0.166	MLE Sd (bias corrected)	0.233
95% Percentile of Chisquare (2kstar)	3.866	90% Percentile	0.447
95% Percentile	0.634	99% Percentile	1.093

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.108	1.264	95% Approx. Gamma UPL	0.663	0.698
95% Gamma USL	1.149	1.318			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.201	SD (KM)	0.192

Variance (KM)	0.0367	SE of Mean (KM)	0.0495
k hat (KM)	1.097	k star (KM)	0.951
nu hat (KM)	39.48	nu star (KM)	34.23
theta hat (KM)	0.183	theta star (KM)	0.211
80% gamma percentile (KM)	0.324	90% gamma percentile (KM)	0.468
95% gamma percentile (KM)	0.612	99% gamma percentile (KM)	0.948

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.823	0.862	95% Approx. Gamma UPL	0.568	0.575
95% KM Gamma Percentile	0.521	0.524	95% Gamma USL	0.845	0.888

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.882	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.826	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.252	Mean in Log Scale	-1.535
SD in Original Scale	0.164	SD in Log Scale	0.539
95% UTL95% Coverage	0.807	95% BCA UTL95% Coverage	0.663
95% Bootstrap (%) UTL95% Coverage	0.663	95% UPL (t)	0.564
90% Percentile (z)	0.43	95% Percentile (z)	0.522
99% Percentile (z)	0.754	95% USL	0.83

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.997	95% KM UTL (Lognormal)95% Coverage	1.053
KM SD of Logged Data	0.835	95% KM UPL (Lognormal)	0.604
95% KM Percentile Lognormal (z)	0.536	95% KM USL (Lognormal)	1.099

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.217	Mean in Log Scale	-1.842
SD in Original Scale	0.188	SD in Log Scale	0.793
95% UTL95% Coverage	1.109	95% UPL (t)	0.654
90% Percentile (z)	0.438	95% Percentile (z)	0.584
99% Percentile (z)	1.003	95% USL	1.154

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.663
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.663
95% USL	0.663	95% KM Chebyshev UPL	1.059

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	11
Minimum Detect	0.311	Minimum Non-Detect	0.076
Maximum Detect	0.663	Maximum Non-Detect	0.249
Variance Detected	0.0203	Percent Non-Detects	66.67%
Mean Detected	0.45	SD Detected	0.142
Mean of Detected Logged Data	-0.838	SD of Detected Logged Data	0.3

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.848	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.201	KM SD	0.192
95% UTL95% Coverage	0.671	95% KM UPL (t)	0.543
90% KM Percentile (z)	0.446	95% KM Percentile (z)	0.516
99% KM Percentile (z)	0.646	95% KM USL	0.681

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.217	SD	0.188
95% UTL95% Coverage	0.677	95% UPL (t)	0.552
90% Percentile (z)	0.457	95% Percentile (z)	0.525
99% Percentile (z)	0.653	95% USL	0.686

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concDL (antimony_ug/l_concentration_fish_awqc)

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95% UTL95% Coverage	1.109	95% UPL (t)	0.654
90% Percentile (z)	0.438	95% Percentile (z)	0.584
99% Percentile (z)	1.003	95% USL	1.154

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.663
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.663
95% USL	0.663	95% KM Chebyshev UPL	1.059

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0019	First Quartile	0.0051
Second Largest	0.01	Median	0.006
Maximum	0.015	Third Quartile	0.008
Mean	0.00666	SD	0.00301
Coefficient of Variation	0.451	Skewness	1.331
Mean of logged Data	-5.103	SD of logged Data	0.453

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0141	90% Percentile (z)	0.0105
95% UPL (t)	0.0121	95% Percentile (z)	0.0116
95% USL	0.0141	99% Percentile (z)	0.0137

Gamma GOF Test

A-D Test Statistic	0.467	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.187	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.583	k star (bias corrected MLE)	4.637
Theta hat (MLE)	0.00119	Theta star (bias corrected MLE)	0.00144
nu hat (MLE)	189.8	nu star (bias corrected)	157.7
MLE Mean (bias corrected)	0.00666	MLE Sd (bias corrected)	0.0031

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0127	90% Percentile	0.0108
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0129	95% Percentile	0.0124
95% WH Approx. Gamma UTL with 95% Coverage	0.0161	99% Percentile	0.0159
95% HW Approx. Gamma UTL with 95% Coverage	0.0165		
95% WH USL	0.016	95% HW USL	0.0165

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.938	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.16	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0188	90% Percentile (z)	0.0109
	95% UPL (t)	0.0137	95% Percentile (z)	0.0128
	95% USL	0.0187	99% Percentile (z)	0.0174

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	0.015
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.015	95% BCA Bootstrap UTL with 95% Coverage	0.015
	95% UPL	0.015	90% Percentile	0.00988
	90% Chebyshev UPL	0.016	95% Percentile	0.011
	95% Chebyshev UPL	0.0202	99% Percentile	0.0142
	95% USL	0.015		

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concDL (antimony_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	13
Minimum	3.5000E-5	First Quartile	9.1000E-5
Second Largest	1.8000E-4	Median	1.1000E-4
Maximum	2.7000E-4	Third Quartile	1.4000E-4
Mean	1.1818E-4	SD	5.3667E-5
Coefficient of Variation	0.454	Skewness	1.432
Mean of logged Data	-9.134	SD of logged Data	0.447

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Shapiro Wilk Test Statistic	0.879	**Shapiro Wilk GOF Test**
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Lilliefors Test Statistic	0.266	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

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Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.5159E-4	90% Percentile (z)	1.8695E-4
	95% UPL (t)	2.1459E-4	95% Percentile (z)	2.0645E-4
	95% USL	2.5099E-4	99% Percentile (z)	2.4302E-4

Gamma GOF Test

A-D Test Statistic	0.485	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.217	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.651	k star (bias corrected MLE)	4.693
Theta hat (MLE)	2.0911E-5	Theta star (bias corrected MLE)	2.5180E-5
nu hat (MLE)	192.1	nu star (bias corrected)	159.6
MLE Mean (bias corrected)	1.1818E-4	MLE Sd (bias corrected)	5.4550E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.2493E-4	90% Percentile	1.9124E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.2787E-4	95% Percentile	2.1980E-4
95% WH Approx. Gamma UTL with	95% Coverage	2.8354E-4	99% Percentile	2.8033E-4
95% HW Approx. Gamma UTL with	95% Coverage	2.9159E-4		
	95% WH USL	2.8251E-4	95% HW USL	2.9046E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.189	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	3.2811E-4	90% Percentile (z)	1.9142E-4
	95% UPL (t)	2.4102E-4	95% Percentile (z)	2.2521E-4
	95% USL	3.2647E-4	99% Percentile (z)	3.0549E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	2.7000E-4
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	2.7000E-4	95% BCA Bootstrap UTL with 95% Coverage	2.7000E-4
95% UPL	2.7000E-4	90% Percentile	1.7400E-4
90% Chebyshev UPL	2.8385E-4	95% Percentile	1.9800E-4
95% Chebyshev UPL	3.5889E-4	99% Percentile	2.5560E-4
95% USL	2.7000E-4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0019	First Quartile	0.0051
Second Largest	0.01	Median	0.006
Maximum	0.015	Third Quartile	0.008
Mean	0.00666	SD	0.00301
Coefficient of Variation	0.451	Skewness	1.331
Mean of logged Data	-5.103	SD of logged Data	0.453

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0141	90% Percentile (z)	0.0105
95% UPL (t)	0.0121	95% Percentile (z)	0.0116
95% USL	0.0141	99% Percentile (z)	0.0137

Gamma GOF Test

A-D Test Statistic	0.467	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.187	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.583	k star (bias corrected MLE)	4.637
Theta hat (MLE)	0.00119	Theta star (bias corrected MLE)	0.00144
nu hat (MLE)	189.8	nu star (bias corrected)	157.7
MLE Mean (bias corrected)	0.00666	MLE Sd (bias corrected)	0.0031

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0127	90% Percentile	0.0108
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0129	95% Percentile	0.0124
95% WH Approx. Gamma UTL with 95% Coverage	0.0161	99% Percentile	0.0159
95% HW Approx. Gamma UTL with 95% Coverage	0.0165		
95% WH USL	0.016	95% HW USL	0.0165

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.938	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.16	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0188	90% Percentile (z)	0.0109
95% UPL (t)	0.0137	95% Percentile (z)	0.0128
95% USL	0.0187	99% Percentile (z)	0.0174

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.015
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.015	95% BCA Bootstrap UTL with 95% Coverage	0.015
95% UPL	0.015	90% Percentile	0.00988
90% Chebyshev UPL	0.016	95% Percentile	0.011
95% Chebyshev UPL	0.0202	99% Percentile	0.0142
95% USL	0.015		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_bmi_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	13
Minimum	9.2000E-4	First Quartile	0.0024
Second Largest	0.0047	Median	0.0028
Maximum	0.0071	Third Quartile	0.0037
Mean	0.00313	SD	0.00142
Coefficient of Variation	0.453	Skewness	1.386
Mean of logged Data	-5.858	SD of logged Data	0.449

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.883	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.243	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.00666	90% Percentile (z)	0.00495
	95% UPL (t)	0.00568	95% Percentile (z)	0.00546
	95% USL	0.00664	99% Percentile (z)	0.00643

Gamma GOF Test

A-D Test Statistic	0.468	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.19	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.636	k star (bias corrected MLE)	4.681
Theta hat (MLE)	5.5544E-4	Theta star (bias corrected MLE)	6.6881E-4
nu hat (MLE)	191.6	nu star (bias corrected)	159.1
MLE Mean (bias corrected)	0.00313	MLE Sd (bias corrected)	0.00145

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.00596	90% Percentile	0.00507
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.00604	95% Percentile	0.00583
95% WH Approx. Gamma UTL with	95% Coverage	0.00752	99% Percentile	0.00743
95% HW Approx. Gamma UTL with	95% Coverage	0.00774		
	95% WH USL	0.00749	95% HW USL	0.00771

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.163	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.00872	90% Percentile (z)	0.00508
	95% UPL (t)	0.0064	95% Percentile (z)	0.00598
	95% USL	0.00868	99% Percentile (z)	0.00812

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage 0.0071
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.0071	95% BCA Bootstrap UTL with	95% Coverage 0.0071
	95% UPL	0.0071	90% Percentile	0.00464
	90% Chebyshev UPL	0.00751	95% Percentile	0.00518
	95% Chebyshev UPL	0.00949	99% Percentile	0.00672
	95% USL	0.0071		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0019	First Quartile	0.0051
Second Largest	0.01	Median	0.006
Maximum	0.015	Third Quartile	0.008
Mean	0.00666	SD	0.00301

Coefficient of Variation	0.451	Skewness	1.331
Mean of logged Data	-5.103	SD of logged Data	0.453

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0141	90% Percentile (z)	0.0105
	95% UPL (t)	0.0121	95% Percentile (z)	0.0116
	95% USL	0.0141	99% Percentile (z)	0.0137

Gamma GOF Test

A-D Test Statistic	0.467	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.187	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.583	k star (bias corrected MLE)	4.637
Theta hat (MLE)	0.00119	Theta star (bias corrected MLE)	0.00144
nu hat (MLE)	189.8	nu star (bias corrected)	157.7
MLE Mean (bias corrected)	0.00666	MLE Sd (bias corrected)	0.0031

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0127	90% Percentile	0.0108
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0129	95% Percentile	0.0124
95% WH Approx. Gamma UTL with	95% Coverage	0.0161	99% Percentile	0.0159
95% HW Approx. Gamma UTL with	95% Coverage	0.0165		
	95% WH USL	0.016	95% HW USL	0.0165

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.938	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.16	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0188	90% Percentile (z)	0.0109
	95% UPL (t)	0.0137	95% Percentile (z)	0.0128
	95% USL	0.0187	99% Percentile (z)	0.0174

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	17	95% UTL with 95% Coverage	0.015
	Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.015	95% BCA Bootstrap UTL with 95% Coverage	0.015
	95% UPL	0.015	90% Percentile	0.00988
	90% Chebyshev UPL	0.016	95% Percentile	0.011
	95% Chebyshev UPL	0.0202	99% Percentile	0.0142
	95% USL	0.015		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	15
Minimum	2.7000E-5	First Quartile	7.1000E-5
Second Largest	1.4000E-4	Median	8.4000E-5
Maximum	2.1000E-4	Third Quartile	1.1000E-4
Mean	9.3294E-5	SD	4.2364E-5
Coefficient of Variation	N/A	Skewness	1.328
Mean of logged Data	-9.372	SD of logged Data	0.453

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.887	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.246	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	1.9861E-4	90% Percentile (z)	1.4759E-4
	95% UPL (t)	1.6940E-4	95% Percentile (z)	1.6298E-4
	95% USL	1.9814E-4	99% Percentile (z)	1.9185E-4

Gamma GOF Test

A-D Test Statistic	0.471	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.193	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.553	k star (bias corrected MLE)	4.613
Theta hat (MLE)	1.6800E-5	Theta star (bias corrected MLE)	2.0226E-5
nu hat (MLE)	188.8	nu star (bias corrected)	156.8
MLE Mean (bias corrected)	9.3294E-5	MLE Sd (bias corrected)	4.3439E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		1.7842E-4	90% Percentile	1.5148E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL		1.8091E-4	95% Percentile	1.7428E-4
95% WH Approx. Gamma UTL with	95% Coverage	2.2528E-4	99% Percentile	2.2265E-4
95% HW Approx. Gamma UTL with	95% Coverage	2.3196E-4		
	95% WH USL	2.2446E-4	95% HW USL	2.3106E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.166	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	2.6237E-4	90% Percentile (z)	1.5200E-4
	95% UPL (t)	1.9195E-4	95% Percentile (z)	1.7920E-4
	95% USL	2.6104E-4	99% Percentile (z)	2.4405E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	2.1000E-4
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	2.1000E-4	95% BCA Bootstrap UTL with	95% Coverage	2.1000E-4

95% UPL	2.1000E-4	90% Percentile	1.4000E-4
90% Chebyshev UPL	2.2407E-4	95% Percentile	1.5400E-4
95% Chebyshev UPL	2.8331E-4	99% Percentile	1.9880E-4
95% USL	2.1000E-4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	13		
Number of Detects	14	Number of Non-Detects	3
Number of Distinct Detects	12	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.145	Maximum Non-Detect	0.008
Variance Detected	0.00118	Percent Non-Detects	17.65%
Mean Detected	0.0291	SD Detected	0.0343
Mean of Detected Logged Data	-3.837	SD of Detected Logged Data	0.689

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.513	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.349	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0254	KM SD	0.0311
95% UTL95% Coverage	0.103	95% KM UPL (t)	0.0812
90% KM Percentile (z)	0.0652	95% KM Percentile (z)	0.0765
99% KM Percentile (z)	0.0976	95% KM USL	0.102

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0247	SD	0.0324
95% UTL95% Coverage	0.105	95% UPL (t)	0.083
90% Percentile (z)	0.0663	95% Percentile (z)	0.0781
99% Percentile (z)	0.1	95% USL	0.105

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.25	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.226	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.232	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.808	k star (bias corrected MLE)	1.468
Theta hat (MLE)	0.0161	Theta star (bias corrected MLE)	0.0198
nu hat (MLE)	50.63	nu star (bias corrected)	41.11
MLE Mean (bias corrected)	0.0291		
MLE Sd (bias corrected)	0.0241	95% Percentile of Chisquare (2kstar)	7.704

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.009	Mean	0.0258
Maximum	0.145	Median	0.019
SD	0.0318	CV	1.235
k hat (MLE)	1.742	k star (bias corrected MLE)	1.474
Theta hat (MLE)	0.0148	Theta star (bias corrected MLE)	0.0175
nu hat (MLE)	59.22	nu star (bias corrected)	50.11
MLE Mean (bias corrected)	0.0258	MLE Sd (bias corrected)	0.0212
95% Percentile of Chisquare (2kstar)	7.723	90% Percentile	0.0539
95% Percentile	0.0675	99% Percentile	0.0982

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0982	0.0987	95% Approx. Gamma UPL	0.0686	0.0673
95% Gamma USL	0.0977	0.0982			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0254	SD (KM)	0.0311
Variance (KM)	9.6412E-4	SE of Mean (KM)	0.00782
k hat (KM)	0.67	k star (KM)	0.591
nu hat (KM)	22.77	nu star (KM)	20.09
theta hat (KM)	0.0379	theta star (KM)	0.043
80% gamma percentile (KM)	0.0419	90% gamma percentile (KM)	0.0663
95% gamma percentile (KM)	0.092	99% gamma percentile (KM)	0.154

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0967	0.0976	95% Approx. Gamma UPL	0.0673	0.0663
95% KM Gamma Percentile	0.0618	0.0605	95% Gamma USL	0.0961	0.097

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.864	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.158	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0248	Mean in Log Scale	-4.109
SD in Original Scale	0.0324	SD in Log Scale	0.874
95% UTL95% Coverage	0.144	95% BCA UTL95% Coverage	0.145
95% Bootstrap (%) UTL95% Coverage	0.145	95% UPL (t)	0.0789
90% Percentile (z)	0.0503	95% Percentile (z)	0.0691
99% Percentile (z)	0.125	95% USL	0.143

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.012	95% KM UTL (Lognormal)95% Coverage	0.106
KM SD of Logged Data	0.711	95% KM UPL (Lognormal)	0.065
95% KM Percentile Lognormal (z)	0.0583	95% KM USL (Lognormal)	0.105

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0247	Mean in Log Scale	-4.134
SD in Original Scale	0.0324	SD in Log Scale	0.908
95% UTL95% Coverage	0.153	95% UPL (t)	0.0818
90% Percentile (z)	0.0513	95% Percentile (z)	0.0713
99% Percentile (z)	0.132	95% USL	0.151

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	0.145
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.145
95% USL	0.145	95% KM Chebyshev UPL	0.165

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	13		
Number of Detects	14	Number of Non-Detects	3
Number of Distinct Detects	12	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.145	Maximum Non-Detect	0.008
Variance Detected	0.00118	Percent Non-Detects	17.65%
Mean Detected	0.0291	SD Detected	0.0343
Mean of Detected Logged Data	-3.837	SD of Detected Logged Data	0.689

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.513	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.349	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0254	KM SD	0.0311
95% UTL95% Coverage	0.103	95% KM UPL (t)	0.0812
90% KM Percentile (z)	0.0652	95% KM Percentile (z)	0.0765
99% KM Percentile (z)	0.0976	95% KM USL	0.102

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0247	SD	0.0324
95% UTL95% Coverage	0.105	95% UPL (t)	0.083
90% Percentile (z)	0.0663	95% Percentile (z)	0.0781
99% Percentile (z)	0.1	95% USL	0.105

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.25	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.226	**Kolmogorov-Smirnov GOF**	

5% K-S Critical Value	0.232	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.808	k star (bias corrected MLE)	1.468
Theta hat (MLE)	0.0161	Theta star (bias corrected MLE)	0.0198
nu hat (MLE)	50.63	nu star (bias corrected)	41.11
MLE Mean (bias corrected)	0.0291		
MLE Sd (bias corrected)	0.0241	95% Percentile of Chisquare (2kstar)	7.704

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.009	Mean	0.0258
Maximum	0.145	Median	0.019
SD	0.0318	CV	1.235
k hat (MLE)	1.742	k star (bias corrected MLE)	1.474
Theta hat (MLE)	0.0148	Theta star (bias corrected MLE)	0.0175
nu hat (MLE)	59.22	nu star (bias corrected)	50.11
MLE Mean (bias corrected)	0.0258	MLE Sd (bias corrected)	0.0212
95% Percentile of Chisquare (2kstar)	7.723	90% Percentile	0.0539
95% Percentile	0.0675	99% Percentile	0.0982

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0982	0.0987	95% Approx. Gamma UPL	0.0686	0.0673
95% Gamma USL	0.0977	0.0982			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0254	SD (KM)	0.0311
Variance (KM)	9.6412E-4	SE of Mean (KM)	0.00782
k hat (KM)	0.67	k star (KM)	0.591
nu hat (KM)	22.77	nu star (KM)	20.09
theta hat (KM)	0.0379	theta star (KM)	0.043
80% gamma percentile (KM)	0.0419	90% gamma percentile (KM)	0.0663
95% gamma percentile (KM)	0.092	99% gamma percentile (KM)	0.154

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0967	0.0976	95% Approx. Gamma UPL	0.0673	0.0663
95% KM Gamma Percentile	0.0618	0.0605	95% Gamma USL	0.0961	0.097

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Shapiro Wilk Test Statistic	0.864	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
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Mean in Original Scale	0.0248	Mean in Log Scale	-4.109
SD in Original Scale	0.0324	SD in Log Scale	0.874
95% UTL95% Coverage	0.144	95% BCA UTL95% Coverage	0.145
95% Bootstrap (%) UTL95% Coverage	0.145	95% UPL (t)	0.0789
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Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.012	95% KM UTL (Lognormal)95% Coverage	0.106
KM SD of Logged Data	0.711	95% KM UPL (Lognormal)	0.065
95% KM Percentile Lognormal (z)	0.0583	95% KM USL (Lognormal)	0.105

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0247	Mean in Log Scale	-4.134
SD in Original Scale	0.0324	SD in Log Scale	0.908
95% UTL95% Coverage	0.153	95% UPL (t)	0.0818
90% Percentile (z)	0.0513	95% Percentile (z)	0.0713
99% Percentile (z)	0.132	95% USL	0.151

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	0.145
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.145
95% USL	0.145	95% KM Chebyshev UPL	0.165

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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concDL (cadmium_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
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Number of Distinct Detects	12	Number of Distinct Non-Detects	1
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Maximum Detect	0.145	Maximum Non-Detect	0.008
Variance Detected	0.00118	Percent Non-Detects	17.65%
Mean Detected	0.0291	SD Detected	0.0343
Mean of Detected Logged Data	-3.837	SD of Detected Logged Data	0.689

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Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

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1% Shapiro Wilk Critical Value	0.825	Data Not Normal at 1% Significance Level
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1% Lilliefors Critical Value	0.263	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0254	KM SD	0.0311
95% UTL95% Coverage	0.103	95% KM UPL (t)	0.0812
90% KM Percentile (z)	0.0652	95% KM Percentile (z)	0.0765
99% KM Percentile (z)	0.0976	95% KM USL	0.102

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0247	SD	0.0324
95% UTL95% Coverage	0.105	95% UPL (t)	0.083
90% Percentile (z)	0.0663	95% Percentile (z)	0.0781
99% Percentile (z)	0.1	95% USL	0.105

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Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.25	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level
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5% K-S Critical Value	0.232	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

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k hat (MLE)	1.808	k star (bias corrected MLE)	1.468
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MLE Mean (bias corrected)	0.0291		
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Gamma ROS Statistics using Imputed Non-Detects

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SD	0.0318	CV	1.235
k hat (MLE)	1.742	k star (bias corrected MLE)	1.474
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nu hat (MLE)	59.22	nu star (bias corrected)	50.11
MLE Mean (bias corrected)	0.0258	MLE Sd (bias corrected)	0.0212
95% Percentile of Chisquare (2kstar)	7.723	90% Percentile	0.0539
95% Percentile	0.0675	99% Percentile	0.0982

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
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95% Gamma USL	0.0977	0.0982			

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Mean (KM)	0.0254	SD (KM)	0.0311
Variance (KM)	9.6412E-4	SE of Mean (KM)	0.00782
k hat (KM)	0.67	k star (KM)	0.591
nu hat (KM)	22.77	nu star (KM)	20.09
theta hat (KM)	0.0379	theta star (KM)	0.043
80% gamma percentile (KM)	0.0419	90% gamma percentile (KM)	0.0663
95% gamma percentile (KM)	0.092	99% gamma percentile (KM)	0.154

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
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95% KM Gamma Percentile	0.0618	0.0605	95% Gamma USL	0.0961	0.097

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.864	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.158	**Lilliefors GOF Test**	
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Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0248	Mean in Log Scale	-4.109
SD in Original Scale	0.0324	SD in Log Scale	0.874
95% UTL95% Coverage	0.144	95% BCA UTL95% Coverage	0.145
95% Bootstrap (%) UTL95% Coverage	0.145	95% UPL (t)	0.0789
90% Percentile (z)	0.0503	95% Percentile (z)	0.0691
99% Percentile (z)	0.125	95% USL	0.143

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.012	95% KM UTL (Lognormal)95% Coverage	0.106
KM SD of Logged Data	0.711	95% KM UPL (Lognormal)	0.065
95% KM Percentile Lognormal (z)	0.0583	95% KM USL (Lognormal)	0.105

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0247	Mean in Log Scale	-4.134
SD in Original Scale	0.0324	SD in Log Scale	0.908
95% UTL95% Coverage	0.153	95% UPL (t)	0.0818
90% Percentile (z)	0.0513	95% Percentile (z)	0.0713
99% Percentile (z)	0.132	95% USL	0.151

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	0.145
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.145
95% USL	0.145	95% KM Chebyshev UPL	0.165

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	0.009	First Quartile	0.016
Second Largest	0.08	Median	0.032
Maximum	0.21	Third Quartile	0.046

Mean	0.0439	SD	0.0473
Coefficient of Variation	1.078	Skewness	2.988
Mean of logged Data	-3.469	SD of logged Data	0.807

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.648	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.162	90% Percentile (z)	0.105
	95% UPL (t)	0.129	95% Percentile (z)	0.122
	95% USL	0.161	99% Percentile (z)	0.154

Gamma GOF Test

A-D Test Statistic	0.493	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.147	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.606	k star (bias corrected MLE)	1.361
Theta hat (MLE)	0.0273	Theta star (bias corrected MLE)	0.0322
nu hat (MLE)	54.59	nu star (bias corrected)	46.29
MLE Mean (bias corrected)	0.0439	MLE Sd (bias corrected)	0.0376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.122	90% Percentile	0.0936
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.123	95% Percentile	0.118
95% WH Approx. Gamma UTL with	95% Coverage	0.177	99% Percentile	0.174
95% HW Approx. Gamma UTL with	95% Coverage	0.185		
	95% WH USL	0.176	95% HW USL	0.184

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.968	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0941	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.231	90% Percentile (z)	0.0876
	95% UPL (t)	0.133	95% Percentile (z)	0.117
	95% USL	0.229	99% Percentile (z)	0.203

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	0.21
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.21	95% BCA Bootstrap UTL with 95% Coverage	0.21
	95% UPL	0.21	90% Percentile	0.0734
	90% Chebyshev UPL	0.19	95% Percentile	0.106
	95% Chebyshev UPL	0.256	99% Percentile	0.189
	95% USL	0.21		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	13
Minimum	1.4000E-4	First Quartile	1.8000E-4
Second Largest	6.4000E-4	Median	3.4000E-4
Maximum	0.0026	Third Quartile	4.3000E-4
Mean	4.5471E-4	SD	5.7403E-4
Coefficient of Variation	1.262	Skewness	3.637
Mean of logged Data	-8.038	SD of logged Data	0.737

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.504	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.315	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.00188	90% Percentile (z)	0.00119
	95% UPL (t)	0.00149	95% Percentile (z)	0.0014
	95% USL	0.00188	99% Percentile (z)	0.00179

Gamma GOF Test

A-D Test Statistic	1.179	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.754	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.193	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.61	k star (bias corrected MLE)	1.365
Theta hat (MLE)	2.8246E-4	Theta star (bias corrected MLE)	3.3313E-4
nu hat (MLE)	54.73	nu star (bias corrected)	46.41
MLE Mean (bias corrected)	4.5471E-4	MLE Sd (bias corrected)	3.8920E-4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00124	90% Percentile	9.6965E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.00123	95% Percentile	0.00122
95% WH Approx. Gamma UTL with 95% Coverage	0.0018	99% Percentile	0.0018
95% HW Approx. Gamma UTL with 95% Coverage	0.00183		
95% WH USL	0.00179	95% HW USL	0.00181

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.879	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.128	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.00202	90% Percentile (z)	8.3137E-4
	95% UPL (t)	0.00122	95% Percentile (z)	0.00109
	95% USL	0.002	99% Percentile (z)	0.0018

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with	95% Coverage	0.0026
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
		Approximate Sample Size needed to achieve specified CC		59

95% Percentile Bootstrap UTL with	95% Coverage	0.0026	95% BCA Bootstrap UTL with	95% Coverage	0.0026
	95% UPL	0.0026		90% Percentile	6.1000E-4
	90% Chebyshev UPL	0.00223		95% Percentile	0.00103
	95% Chebyshev UPL	0.00303		99% Percentile	0.00229
	95% USL	0.0026			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	0.009	First Quartile	0.016
Second Largest	0.08	Median	0.032
Maximum	0.21	Third Quartile	0.046
Mean	0.0439	SD	0.0473
Coefficient of Variation	1.078	Skewness	2.988
Mean of logged Data	-3.469	SD of logged Data	0.807

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.648	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.162		90% Percentile (z)	0.105
	95% UPL (t)	0.129		95% Percentile (z)	0.122
	95% USL	0.161		99% Percentile (z)	0.154

Gamma GOF Test

A-D Test Statistic	0.493	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.147	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.606	k star (bias corrected MLE)	1.361
Theta hat (MLE)	0.0273	Theta star (bias corrected MLE)	0.0322
nu hat (MLE)	54.59	nu star (bias corrected)	46.29
MLE Mean (bias corrected)	0.0439	MLE Sd (bias corrected)	0.0376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.122	90% Percentile	0.0936
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.123	95% Percentile	0.118
95% WH Approx. Gamma UTL with 95% Coverage	0.177	99% Percentile	0.174
95% HW Approx. Gamma UTL with 95% Coverage	0.185		
95% WH USL	0.176	95% HW USL	0.184

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.968	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.0941	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.231	90% Percentile (z)	0.0876
95% UPL (t)	0.133	95% Percentile (z)	0.117
95% USL	0.229	99% Percentile (z)	0.203

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.21
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.21	95% BCA Bootstrap UTL with 95% Coverage	0.21
95% UPL	0.21	90% Percentile	0.0734
90% Chebyshev UPL	0.19	95% Percentile	0.106
95% Chebyshev UPL	0.256	99% Percentile	0.189
95% USL	0.21		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	0.009	First Quartile	0.016
Second Largest	0.08	Median	0.032
Maximum	0.21	Third Quartile	0.046
Mean	0.0439	SD	0.0473
Coefficient of Variation	1.078	Skewness	2.988
Mean of logged Data	-3.469	SD of logged Data	0.807

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.648	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.162	90% Percentile (z)	0.105
95% UPL (t)	0.129	95% Percentile (z)	0.122
95% USL	0.161	99% Percentile (z)	0.154

Gamma GOF Test

A-D Test Statistic	0.493	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.147	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.606	k star (bias corrected MLE)	1.361
Theta hat (MLE)	0.0273	Theta star (bias corrected MLE)	0.0322
nu hat (MLE)	54.59	nu star (bias corrected)	46.29
MLE Mean (bias corrected)	0.0439	MLE Sd (bias corrected)	0.0376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.122	90% Percentile	0.0936
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.123	95% Percentile	0.118
95% WH Approx. Gamma UTL with 95% Coverage	0.177	99% Percentile	0.174
95% HW Approx. Gamma UTL with 95% Coverage	0.185		
95% WH USL	0.176	95% HW USL	0.184

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.968	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0941	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.231	90% Percentile (z)	0.0876
	95% UPL (t)	0.133	95% Percentile (z)	0.117
	95% USL	0.229	99% Percentile (z)	0.203

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	0.21
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.21	95% BCA Bootstrap UTL with 95% Coverage	0.21
	95% UPL	0.21	90% Percentile	0.0734
	90% Chebyshev UPL	0.19	95% Percentile	0.106
	95% Chebyshev UPL	0.256	99% Percentile	0.189
	95% USL	0.21		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	0.0012	First Quartile	0.0022
Second Largest	0.011	Median	0.0044
Maximum	0.028	Third Quartile	0.0066
Mean	0.00603	SD	0.00632
Coefficient of Variation	1.048	Skewness	2.893
Mean of logged Data	-5.448	SD of logged Data	0.806

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.666	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.256	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0217	90% Percentile (z)	0.0141
	95% UPL (t)	0.0174	95% Percentile (z)	0.0164
	95% USL	0.0217	99% Percentile (z)	0.0207

Gamma GOF Test

A-D Test Statistic	0.441	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.141	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.632	k star (bias corrected MLE)	1.384
Theta hat (MLE)	0.00369	Theta star (bias corrected MLE)	0.00436
nu hat (MLE)	55.5	nu star (bias corrected)	47.04
MLE Mean (bias corrected)	0.00603	MLE Sd (bias corrected)	0.00513

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0167	90% Percentile	0.0128
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0169	95% Percentile	0.0161
95% WH Approx. Gamma UTL with	95% Coverage	0.0242	99% Percentile	0.0237
95% HW Approx. Gamma UTL with	95% Coverage	0.0253		
	95% WH USL	0.024	95% HW USL	0.0251

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.974	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0917	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.032	90% Percentile (z)	0.0121
	95% UPL (t)	0.0183	95% Percentile (z)	0.0162
	95% USL	0.0317	99% Percentile (z)	0.0281

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.028
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.028	95% BCA Bootstrap UTL with 95% Coverage	0.028
95% UPL	0.028	90% Percentile	0.0102
90% Chebyshev UPL	0.0255	95% Percentile	0.0144
95% Chebyshev UPL	0.0344	99% Percentile	0.0253
95% USL	0.028		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (calcium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	14000	First Quartile	18175
Second Largest	34000	Median	21150
Maximum	41000	Third Quartile	29275
Mean	24083	SD	7626
Coefficient of Variation	0.317	Skewness	0.643
Mean of logged Data	10.04	SD of logged Data	0.309

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.915	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.2	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	42791	90% Percentile (z)	33857
95% UPL (t)	37714	95% Percentile (z)	36627
95% USL	43180	99% Percentile (z)	41825

Gamma GOF Test

A-D Test Statistic	0.618	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.199	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.09	k star (bias corrected MLE)	9.278
Theta hat (MLE)	2172	Theta star (bias corrected MLE)	2596
nu hat (MLE)	399.2	nu star (bias corrected)	334
MLE Mean (bias corrected)	24083	MLE Sd (bias corrected)	7907

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	38979	90% Percentile	34608
95% Hawkins Wixley (HW) Approx. Gamma UPL	39201	95% Percentile	38390
95% WH Approx. Gamma UTL with 95% Coverage	46221	99% Percentile	46175
95% HW Approx. Gamma UTL with 95% Coverage	46844		
95% WH USL	46811	95% HW USL	47473

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.187	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	49134	90% Percentile (z)	34199
95% UPL (t)	39990	95% Percentile (z)	38266
95% USL	49916	99% Percentile (z)	47246

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	41000
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	41000	95% BCA Bootstrap UTL with 95% Coverage	41000
95% UPL	41000	90% Percentile	33090
90% Chebyshev UPL	47589	95% Percentile	35050
95% Chebyshev UPL	58236	99% Percentile	39810
95% USL	41000		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (chloride_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
Minimum	0.16	First Quartile	0.328
Second Largest	4.58	Median	0.635
Maximum	5.4	Third Quartile	1.363
Mean	1.321	SD	1.616
Coefficient of Variation	1.223	Skewness	1.741
Mean of logged Data	-0.303	SD of logged Data	1.069

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.291	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.285	90% Percentile (z)	3.392
	95% UPL (t)	4.209	95% Percentile (z)	3.979
	95% USL	5.367	99% Percentile (z)	5.08

Gamma GOF Test

A-D Test Statistic	0.993	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.221	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.209	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.994	k star (bias corrected MLE)	0.865
Theta hat (MLE)	1.329	Theta star (bias corrected MLE)	1.527
nu hat (MLE)	35.78	nu star (bias corrected)	31.15
MLE Mean (bias corrected)	1.321	MLE Sd (bias corrected)	1.42

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4.334	90% Percentile	3.152
95% Hawkins Wixley (HW) Approx. Gamma UPL	4.423	95% Percentile	4.167
95% WH Approx. Gamma UTL with 95% Coverage	6.635	99% Percentile	6.549
95% HW Approx. Gamma UTL with 95% Coverage	7.106		
95% WH USL	6.839	95% HW USL	7.353

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.159	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	10.16	90% Percentile (z)	2.906
95% UPL (t)	4.989	95% Percentile (z)	4.285
95% USL	10.73	99% Percentile (z)	8.876

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	5.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.4	95% BCA Bootstrap UTL with 95% Coverage	5.4
95% UPL	5.4	90% Percentile	4.118
90% Chebyshev UPL	6.302	95% Percentile	4.703
95% Chebyshev UPL	8.558	99% Percentile	5.261
95% USL	5.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	0	Number of Non-Detects	17
Number of Distinct Detects	0	Number of Distinct Non-Detects	17
Minimum Detect	N/A	Minimum Non-Detect	0.08

Maximum Detect	N/A	Maximum Non-Detect	1.56
Variance Detected	N/A	Percent Non-Detects	100%
Mean Detected	N/A	SD Detected	N/A
Mean of Detected Logged Data	N/A	SD of Detected Logged Data	N/A

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_aquatic plants_awqc) was not processed!

concDL (copper_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	0	Number of Non-Detects	17
Number of Distinct Detects	0	Number of Distinct Non-Detects	17
Minimum Detect	N/A	Minimum Non-Detect	0.08
Maximum Detect	N/A	Maximum Non-Detect	1.56
Variance Detected	N/A	Percent Non-Detects	100%
Mean Detected	N/A	SD Detected	N/A
Mean of Detected Logged Data	N/A	SD of Detected Logged Data	N/A

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_bmi_awqc) was not processed!

concDL (copper_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	0	Number of Non-Detects	17
Number of Distinct Detects	0	Number of Distinct Non-Detects	17
Minimum Detect	N/A	Minimum Non-Detect	0.08
Maximum Detect	N/A	Maximum Non-Detect	1.56
Variance Detected	N/A	Percent Non-Detects	100%
Mean Detected	N/A	SD Detected	N/A
Mean of Detected Logged Data	N/A	SD of Detected Logged Data	N/A

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!

Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_fish_awqc) was not processed!

concDL (copper_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	15
Minimum	0.036	First Quartile	0.35
Second Largest	1.6	Median	0.59
Maximum	4.3	Third Quartile	1.2
Mean	0.925	SD	0.998
Coefficient of Variation	1.079	Skewness	2.605
Mean of logged Data	-0.589	SD of logged Data	1.173

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.722	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.191	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3.407	90% Percentile (z)	2.204
	95% UPL (t)	2.719	95% Percentile (z)	2.567
	95% USL	3.396	99% Percentile (z)	3.248

Gamma GOF Test

A-D Test Statistic	0.243	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.764	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.114	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.116	k star (bias corrected MLE)	0.958
Theta hat (MLE)	0.829	Theta star (bias corrected MLE)	0.965
nu hat (MLE)	37.95	nu star (bias corrected)	32.58
MLE Mean (bias corrected)	0.925	MLE Sd (bias corrected)	0.945

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.956	90% Percentile	2.152
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.137	95% Percentile	2.813
95% WH Approx. Gamma UTL with 95% Coverage	4.485	99% Percentile	4.353
95% HW Approx. Gamma UTL with 95% Coverage	5.029		
95% WH USL	4.456	95% HW USL	4.993

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.138	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	10.24	90% Percentile (z)	2.494
95% UPL (t)	4.562	95% Percentile (z)	3.819
95% USL	10.11	99% Percentile (z)	8.492

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	4.3
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	4.3	95% BCA Bootstrap UTL with 95% Coverage	4.3
95% UPL	4.3	90% Percentile	1.54
90% Chebyshev UPL	4.007	95% Percentile	2.14
95% Chebyshev UPL	5.403	99% Percentile	3.868
95% USL	4.3		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	15
Minimum	0.036	First Quartile	0.35
Second Largest	1.6	Median	0.59

Maximum	4.3	Third Quartile	1.2
Mean	0.925	SD	0.998
Coefficient of Variation	1.079	Skewness	2.605
Mean of logged Data	-0.589	SD of logged Data	1.173

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.722	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.191	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3.407	90% Percentile (z)	2.204
	95% UPL (t)	2.719	95% Percentile (z)	2.567
	95% USL	3.396	99% Percentile (z)	3.248

Gamma GOF Test

A-D Test Statistic	0.243	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.764	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.114	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.116	k star (bias corrected MLE)	0.958
Theta hat (MLE)	0.829	Theta star (bias corrected MLE)	0.965
nu hat (MLE)	37.95	nu star (bias corrected)	32.58
MLE Mean (bias corrected)	0.925	MLE Sd (bias corrected)	0.945

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.956	90% Percentile	2.152
95% Hawkins Wixley (HW) Approx. Gamma UPL		3.137	95% Percentile	2.813
95% WH Approx. Gamma UTL with	95% Coverage	4.485	99% Percentile	4.353
95% HW Approx. Gamma UTL with	95% Coverage	5.029		
	95% WH USL	4.456	95% HW USL	4.993

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.138	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	10.24	90% Percentile (z)		2.494
	95% UPL (t)	4.562	95% Percentile (z)		3.819
	95% USL	10.11	99% Percentile (z)		8.492

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	17	95% UTL with	95% Coverage	4.3
	Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	4.3	95% BCA Bootstrap UTL with	95% Coverage	4.3
	95% UPL	4.3		90% Percentile	1.54
	90% Chebyshev UPL	4.007		95% Percentile	2.14
	95% Chebyshev UPL	5.403		99% Percentile	3.868
	95% USL	4.3			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	15
Minimum	0.036	First Quartile	0.35
Second Largest	1.6	Median	0.59
Maximum	4.3	Third Quartile	1.2
Mean	0.925	SD	0.998
Coefficient of Variation	1.079	Skewness	2.605
Mean of logged Data	-0.589	SD of logged Data	1.173

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.722	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.191	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data appear Normal at 1% Significance Level	

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3.407	90% Percentile (z)		2.204
	95% UPL (t)	2.719	95% Percentile (z)		2.567
	95% USL	3.396	99% Percentile (z)		3.248

Gamma GOF Test

A-D Test Statistic	0.243	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.764	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.114	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.116	k star (bias corrected MLE)	0.958
Theta hat (MLE)	0.829	Theta star (bias corrected MLE)	0.965
nu hat (MLE)	37.95	nu star (bias corrected)	32.58
MLE Mean (bias corrected)	0.925	MLE Sd (bias corrected)	0.945

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.956	90% Percentile	2.152
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.137	95% Percentile	2.813
95% WH Approx. Gamma UTL with 95% Coverage	4.485	99% Percentile	4.353
95% HW Approx. Gamma UTL with 95% Coverage	5.029		
95% WH USL	4.456	95% HW USL	4.993

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.138	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	10.24	90% Percentile (z)		2.494
	95% UPL (t)	4.562	95% Percentile (z)		3.819
	95% USL	10.11	99% Percentile (z)		8.492

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with	95% Coverage	4.3
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582

			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	4.3	95% BCA Bootstrap UTL with	95% Coverage	4.3
	95% UPL	4.3		90% Percentile	1.54
	90% Chebyshev UPL	4.007		95% Percentile	2.14
	95% Chebyshev UPL	5.403		99% Percentile	3.868
	95% USL	4.3			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	14
Minimum	0.0044	First Quartile	0.045
Second Largest	0.16	Median	0.077
Maximum	0.25	Third Quartile	0.12
Mean	0.0882	SD	0.0632
Coefficient of Variation	0.717	Skewness	0.995
Mean of logged Data	-2.775	SD of logged Data	1.024

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.142	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.245	90% Percentile (z)		0.169
	95% UPL (t)	0.202	95% Percentile (z)		0.192
	95% USL	0.245	99% Percentile (z)		0.235

Gamma GOF Test

A-D Test Statistic	0.245	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.755	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.105	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.589	k star (bias corrected MLE)	1.348
Theta hat (MLE)	0.0555	Theta star (bias corrected MLE)	0.0655
nu hat (MLE)	54.02	nu star (bias corrected)	45.82
MLE Mean (bias corrected)	0.0882	MLE Sd (bias corrected)	0.076

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.251	90% Percentile	0.189
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.269	95% Percentile	0.238
95% WH Approx. Gamma UTL with 95% Coverage	0.363	99% Percentile	0.351
95% HW Approx. Gamma UTL with 95% Coverage	0.409		
95% WH USL	0.361	95% HW USL	0.406

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.895	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.164	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.796	90% Percentile (z)	0.232
95% UPL (t)	0.393	95% Percentile (z)	0.336
95% USL	0.787	99% Percentile (z)	0.676

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.25
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.25	95% BCA Bootstrap UTL with 95% Coverage	0.25
95% UPL	0.25	90% Percentile	0.16
90% Chebyshev UPL	0.283	95% Percentile	0.178
95% Chebyshev UPL	0.372	99% Percentile	0.236
95% USL	0.25		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	14
Minimum	0.067	First Quartile	0.64
Second Largest	3.2	Median	1.1
Maximum	9.1	Third Quartile	2.2
Mean	1.769	SD	2.115
Coefficient of Variation	1.196	Skewness	2.849
Mean of logged Data	0.00926	SD of logged Data	1.2

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.676	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.243	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	7.027	90% Percentile (z)	4.479
95% UPL (t)	5.569	95% Percentile (z)	5.248
95% USL	7.004	99% Percentile (z)	6.69

Gamma GOF Test

A-D Test Statistic	0.274	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.765	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.112	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.026	k star (bias corrected MLE)	0.884
Theta hat (MLE)	1.724	Theta star (bias corrected MLE)	2.001
nu hat (MLE)	34.88	nu star (bias corrected)	30.06
MLE Mean (bias corrected)	1.769	MLE Sd (bias corrected)	1.881

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	5.793	90% Percentile	4.197
95% Hawkins Wixley (HW) Approx. Gamma UPL	6.109	95% Percentile	5.536
95% WH Approx. Gamma UTL with 95% Coverage	8.901	99% Percentile	8.671
95% HW Approx. Gamma UTL with 95% Coverage	9.928		
95% WH USL	8.843	95% HW USL	9.855

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.957	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.144	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	19.93	90% Percentile (z)	4.697
	95% UPL (t)	8.712	95% Percentile (z)	7.263
	95% USL	19.66	99% Percentile (z)	16.45

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	9.1
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	9.1	95% BCA Bootstrap UTL with 95% Coverage	9.1
	95% UPL	9.1	90% Percentile	3.08
	90% Chebyshev UPL	8.298	95% Percentile	4.38
	95% Chebyshev UPL	11.26	99% Percentile	8.156
	95% USL	9.1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (doc_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	16	Number of Non-Detects	1
Number of Distinct Detects	15	Number of Distinct Non-Detects	1
Minimum Detect	0.28	Minimum Non-Detect	0.07
Maximum Detect	1.94	Maximum Non-Detect	0.07
Variance Detected	0.264	Percent Non-Detects	5.882%
Mean Detected	0.833	SD Detected	0.514
Mean of Detected Logged Data	-0.352	SD of Detected Logged Data	0.6

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.191	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.789	KM SD	0.515
95% UTL95% Coverage	2.068	95% KM UPL (t)	1.713
90% KM Percentile (z)	1.448	95% KM Percentile (z)	1.635
99% KM Percentile (z)	1.986	95% KM USL	2.062

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.786	SD	0.534
95% UTL95% Coverage	2.113	95% UPL (t)	1.745
90% Percentile (z)	1.47	95% Percentile (z)	1.664
99% Percentile (z)	2.028	95% USL	2.107

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.482	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.143	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.217	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.095	k star (bias corrected MLE)	2.556
Theta hat (MLE)	0.269	Theta star (bias corrected MLE)	0.326
nu hat (MLE)	99.03	nu star (bias corrected)	81.8
MLE Mean (bias corrected)	0.833		
MLE Sd (bias corrected)	0.521	95% Percentile of Chisquare (2kstar)	11.24

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.785
Maximum	1.94	Median	0.595

SD	0.536	CV	0.683
k hat (MLE)	1.532	k star (bias corrected MLE)	1.301
Theta hat (MLE)	0.512	Theta star (bias corrected MLE)	0.603
nu hat (MLE)	52.1	nu star (bias corrected)	44.24
MLE Mean (bias corrected)	0.785	MLE Sd (bias corrected)	0.688
95% Percentile of Chisquare (2kstar)	7.113	90% Percentile	1.694
95% Percentile	2.146	99% Percentile	3.176

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.205	3.726	95% Approx. Gamma UPL	2.225	2.447
95% Gamma USL	3.187	3.702			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.789	SD (KM)	0.515
Variance (KM)	0.265	SE of Mean (KM)	0.129
k hat (KM)	2.346	k star (KM)	1.972
nu hat (KM)	79.78	nu star (KM)	67.04
theta hat (KM)	0.336	theta star (KM)	0.4
80% gamma percentile (KM)	1.183	90% gamma percentile (KM)	1.539
95% gamma percentile (KM)	1.879	99% gamma percentile (KM)	2.634

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.72	2.932	95% Approx. Gamma UPL	1.962	2.043
95% KM Gamma Percentile	1.817	1.879	95% Gamma USL	2.706	2.916

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.947	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.906	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.128	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.196	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.794	Mean in Log Scale	-0.439
SD in Original Scale	0.523	SD in Log Scale	0.682
95% UTL95% Coverage	3.514	95% BCA UTL95% Coverage	1.94
95% Bootstrap (%) UTL95% Coverage	1.94	95% UPL (t)	2.195
90% Percentile (z)	1.545	95% Percentile (z)	1.98
99% Percentile (z)	3.151	95% USL	3.487

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.488	95% KM UTL (Lognormal)95% Coverage	4.291

KM SD of Logged Data	0.782	95% KM UPL (Lognormal)	2.502
95% KM Percentile Lognormal (z)	2.222	95% KM USL (Lognormal)	4.254

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.786	Mean in Log Scale	-0.529
SD in Original Scale	0.534	SD in Log Scale	0.931
95% UTL95% Coverage	5.961	95% UPL (t)	3.138
90% Percentile (z)	1.943	95% Percentile (z)	2.724
99% Percentile (z)	5.138	95% USL	5.899

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	1.94
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.94
95% USL	1.94	95% KM Chebyshev UPL	3.097

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (hardness_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	47	First Quartile	58.78
Second Largest	112	Median	68.05
Maximum	133	Third Quartile	96.63
Mean	78.48	SD	24.68
Coefficient of Variation	0.314	Skewness	0.691
Mean of logged Data	4.318	SD of logged Data	0.304

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.905	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.228	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	139	90% Percentile (z)	110.1
	95% UPL (t)	122.6	95% Percentile (z)	119.1
	95% USL	140.3	99% Percentile (z)	135.9

Gamma GOF Test

A-D Test Statistic	0.69	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.222	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.37	k star (bias corrected MLE)	9.516
Theta hat (MLE)	6.9	Theta star (bias corrected MLE)	8.248
nu hat (MLE)	409.5	nu star (bias corrected)	342.6
MLE Mean (bias corrected)	78.48	MLE Sd (bias corrected)	25.44

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		126.3	90% Percentile	112.3
95% Hawkins Wixley (HW) Approx. Gamma UPL		127	95% Percentile	124.5
95% WH Approx. Gamma UTL with	95% Coverage	149.6	99% Percentile	149.4
95% HW Approx. Gamma UTL with	95% Coverage	151.4		
	95% WH USL	151.4	95% HW USL	153.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.209	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	158.3	90% Percentile (z)	110.9
	95% UPL (t)	129.3	95% Percentile (z)	123.8
	95% USL	160.8	99% Percentile (z)	152.4

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with	95% Coverage	133
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603

			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	133	95% BCA Bootstrap UTL with	95% Coverage	133
	95% UPL	133		90% Percentile	107.8
	90% Chebyshev UPL	154.5		95% Percentile	115.2
	95% Chebyshev UPL	189		99% Percentile	129.4
	95% USL	133			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	5	Number of Non-Detects	12
Number of Distinct Detects	5	Number of Distinct Non-Detects	11
Minimum Detect	192	Minimum Non-Detect	8
Maximum Detect	3250	Maximum Non-Detect	100
Variance Detected	1635045	Percent Non-Detects	70.59%
Mean Detected	1014	SD Detected	1279
Mean of Detected Logged Data	6.379	SD of Detected Logged Data	1.113

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.726	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.339	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	303.8	KM SD	771.1
95% UTL95% Coverage	2221	95% KM UPL (t)	1689
90% KM Percentile (z)	1292	95% KM Percentile (z)	1572
99% KM Percentile (z)	2098	95% KM USL	2212

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	308.4	SD	793.1
95% UTL95% Coverage	2280	95% UPL (t)	1733

90% Percentile (z)	1325	95% Percentile (z)	1613
99% Percentile (z)	2153	95% USL	2271

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.417	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.691	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.25	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.364	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.058	k star (bias corrected MLE)	0.556
Theta hat (MLE)	958.4	Theta star (bias corrected MLE)	1822
nu hat (MLE)	10.58	nu star (bias corrected)	5.564
MLE Mean (bias corrected)	1014		
MLE Sd (bias corrected)	1359	95% Percentile of Chisquare (2kstar)	4.114

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	298.1
Maximum	3250	Median	0.01
SD	797.1	CV	2.674
k hat (MLE)	0.113	k star (bias corrected MLE)	0.132
Theta hat (MLE)	2637	Theta star (bias corrected MLE)	2253
nu hat (MLE)	3.843	nu star (bias corrected)	4.498
MLE Mean (bias corrected)	298.1	MLE Sd (bias corrected)	819.6
95% Percentile of Chisquare (2kstar)	1.489	90% Percentile	864.9
95% Percentile	1678	99% Percentile	4101

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2654	3347	95% Approx. Gamma UPL	1250	1273
95% Gamma USL	2625	3301			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	303.8	SD (KM)	771.1
Variance (KM)	594661	SE of Mean (KM)	209.1
k hat (KM)	0.155	k star (KM)	0.167
nu hat (KM)	5.276	nu star (KM)	5.678
theta hat (KM)	1958	theta star (KM)	1819

80% gamma percentile (KM)	358.7	90% gamma percentile (KM)	911.5
95% gamma percentile (KM)	1635	99% gamma percentile (KM)	3690

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2179	2345	95% Approx. Gamma UPL	1153	1111
95% KM Gamma Percentile	982	923.3	95% Gamma USL	2158	2319

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.319	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	303.9	Mean in Log Scale	3.307
SD in Original Scale	794.8	SD in Log Scale	2.145
95% UTL95% Coverage	5648	95% BCA UTL95% Coverage	3250
95% Bootstrap (%) UTL95% Coverage	3250	95% UPL (t)	1287
90% Percentile (z)	426.5	95% Percentile (z)	929.7
99% Percentile (z)	4010	95% USL	5514

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.344	95% KM UTL (Lognormal)95% Coverage	4429
KM SD of Logged Data	2.032	95% KM UPL (Lognormal)	1091
95% KM Percentile Lognormal (z)	801.5	95% KM USL (Lognormal)	4329

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	308.4	Mean in Log Scale	3.533
SD in Original Scale	793.1	SD in Log Scale	2.089
95% UTL95% Coverage	6165	95% UPL (t)	1460
90% Percentile (z)	497.8	95% Percentile (z)	1063
99% Percentile (z)	4416	95% USL	6022

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	3250
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3250
95% USL	3250	95% KM Chebyshev UPL	3763

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	5	Number of Non-Detects	12
Number of Distinct Detects	5	Number of Distinct Non-Detects	11
Minimum Detect	192	Minimum Non-Detect	8
Maximum Detect	3250	Maximum Non-Detect	100
Variance Detected	1635045	Percent Non-Detects	70.59%
Mean Detected	1014	SD Detected	1279
Mean of Detected Logged Data	6.379	SD of Detected Logged Data	1.113

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.726	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.339	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	303.8	KM SD	771.1
95% UTL95% Coverage	2221	95% KM UPL (t)	1689
90% KM Percentile (z)	1292	95% KM Percentile (z)	1572
99% KM Percentile (z)	2098	95% KM USL	2212

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	308.4	SD	793.1
95% UTL95% Coverage	2280	95% UPL (t)	1733
90% Percentile (z)	1325	95% Percentile (z)	1613
99% Percentile (z)	2153	95% USL	2271

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.417	**Anderson-Darling GOF Test**

5% A-D Critical Value	0.691	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.25	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.364	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.058	k star (bias corrected MLE)	0.556
Theta hat (MLE)	958.4	Theta star (bias corrected MLE)	1822
nu hat (MLE)	10.58	nu star (bias corrected)	5.564
MLE Mean (bias corrected)	1014		
MLE Sd (bias corrected)	1359	95% Percentile of Chisquare (2kstar)	4.114

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	298.1
Maximum	3250	Median	0.01
SD	797.1	CV	2.674
k hat (MLE)	0.113	k star (bias corrected MLE)	0.132
Theta hat (MLE)	2637	Theta star (bias corrected MLE)	2253
nu hat (MLE)	3.843	nu star (bias corrected)	4.498
MLE Mean (bias corrected)	298.1	MLE Sd (bias corrected)	819.6
95% Percentile of Chisquare (2kstar)	1.489	90% Percentile	864.9
95% Percentile	1678	99% Percentile	4101

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2654	3347	95% Approx. Gamma UPL	1250	1273
95% Gamma USL	2625	3301			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	303.8	SD (KM)	771.1
Variance (KM)	594661	SE of Mean (KM)	209.1
k hat (KM)	0.155	k star (KM)	0.167
nu hat (KM)	5.276	nu star (KM)	5.678
theta hat (KM)	1958	theta star (KM)	1819
80% gamma percentile (KM)	358.7	90% gamma percentile (KM)	911.5
95% gamma percentile (KM)	1635	99% gamma percentile (KM)	3690

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW

95% Approx. Gamma UTL with 95% Coverage	2179	2345	95% Approx. Gamma UPL	1153	1111
95% KM Gamma Percentile	982	923.3	95% Gamma USL	2158	2319

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.806	Detected Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.319	Detected Data appear Lognormal at 10% Significance Level	

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	303.9	Mean in Log Scale	3.307
SD in Original Scale	794.8	SD in Log Scale	2.145
95% UTL95% Coverage	5648	95% BCA UTL95% Coverage	3250
95% Bootstrap (%) UTL95% Coverage	3250	95% UPL (t)	1287
90% Percentile (z)	426.5	95% Percentile (z)	929.7
99% Percentile (z)	4010	95% USL	5514

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.344	95% KM UTL (Lognormal)95% Coverage	4429
KM SD of Logged Data	2.032	95% KM UPL (Lognormal)	1091
95% KM Percentile Lognormal (z)	801.5	95% KM USL (Lognormal)	4329

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	308.4	Mean in Log Scale	3.533
SD in Original Scale	793.1	SD in Log Scale	2.089
95% UTL95% Coverage	6165	95% UPL (t)	1460
90% Percentile (z)	497.8	95% Percentile (z)	1063
99% Percentile (z)	4416	95% USL	6022

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	3250
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3250
95% USL	3250	95% KM Chebyshev UPL	3763

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	5	Number of Non-Detects	12
Number of Distinct Detects	5	Number of Distinct Non-Detects	11
Minimum Detect	192	Minimum Non-Detect	8
Maximum Detect	3250	Maximum Non-Detect	100
Variance Detected	1635045	Percent Non-Detects	70.59%
Mean Detected	1014	SD Detected	1279
Mean of Detected Logged Data	6.379	SD of Detected Logged Data	1.113

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.726	**Shapiro Wilk GOF Test**
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1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	303.8	KM SD	771.1
95% UTL95% Coverage	2221	95% KM UPL (t)	1689
90% KM Percentile (z)	1292	95% KM Percentile (z)	1572
99% KM Percentile (z)	2098	95% KM USL	2212

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	308.4	SD	793.1
95% UTL95% Coverage	2280	95% UPL (t)	1733
90% Percentile (z)	1325	95% Percentile (z)	1613
99% Percentile (z)	2153	95% USL	2271

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.417	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.691	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.25	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.364	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.058	k star (bias corrected MLE)	0.556
Theta hat (MLE)	958.4	Theta star (bias corrected MLE)	1822
nu hat (MLE)	10.58	nu star (bias corrected)	5.564
MLE Mean (bias corrected)	1014		
MLE Sd (bias corrected)	1359	95% Percentile of Chisquare (2kstar)	4.114

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

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This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	298.1
Maximum	3250	Median	0.01
SD	797.1	CV	2.674
k hat (MLE)	0.113	k star (bias corrected MLE)	0.132
Theta hat (MLE)	2637	Theta star (bias corrected MLE)	2253
nu hat (MLE)	3.843	nu star (bias corrected)	4.498
MLE Mean (bias corrected)	298.1	MLE Sd (bias corrected)	819.6
95% Percentile of Chisquare (2kstar)	1.489	90% Percentile	864.9
95% Percentile	1678	99% Percentile	4101

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2654	3347	95% Approx. Gamma UPL	1250	1273
95% Gamma USL	2625	3301			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	303.8	SD (KM)	771.1
Variance (KM)	594661	SE of Mean (KM)	209.1
k hat (KM)	0.155	k star (KM)	0.167
nu hat (KM)	5.276	nu star (KM)	5.678
theta hat (KM)	1958	theta star (KM)	1819
80% gamma percentile (KM)	358.7	90% gamma percentile (KM)	911.5
95% gamma percentile (KM)	1635	99% gamma percentile (KM)	3690

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2179	2345	95% Approx. Gamma UPL	1153	1111
95% KM Gamma Percentile	982	923.3	95% Gamma USL	2158	2319

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.806	Detected Data appear Lognormal at 10% Significance Level	

Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.319	Detected Data appear Lognormal at 10% Significance Level	

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	303.9	Mean in Log Scale	3.307
SD in Original Scale	794.8	SD in Log Scale	2.145
95% UTL95% Coverage	5648	95% BCA UTL95% Coverage	3250
95% Bootstrap (%) UTL95% Coverage	3250	95% UPL (t)	1287
90% Percentile (z)	426.5	95% Percentile (z)	929.7
99% Percentile (z)	4010	95% USL	5514

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.344	95% KM UTL (Lognormal)95% Coverage	4429
KM SD of Logged Data	2.032	95% KM UPL (Lognormal)	1091
95% KM Percentile Lognormal (z)	801.5	95% KM USL (Lognormal)	4329

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	308.4	Mean in Log Scale	3.533
SD in Original Scale	793.1	SD in Log Scale	2.089
95% UTL95% Coverage	6165	95% UPL (t)	1460
90% Percentile (z)	497.8	95% Percentile (z)	1063
99% Percentile (z)	4416	95% USL	6022

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	3250
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3250
95% USL	3250	95% KM Chebyshev UPL	3763

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.008	First Quartile	0.011

Second Largest	0.89	Median	0.033
Maximum	3.2	Third Quartile	0.19
Mean	0.315	SD	0.778
Coefficient of Variation	2.468	Skewness	3.6
Mean of logged Data	-2.888	SD of logged Data	1.796

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.446	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.346	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.249	90% Percentile (z)	1.312
	95% UPL (t)	1.712	95% Percentile (z)	1.594
	95% USL	2.24	99% Percentile (z)	2.125

Gamma GOF Test

A-D Test Statistic	1.466	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.824	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.265	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.224	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.382	k star (bias corrected MLE)	0.354
Theta hat (MLE)	0.824	Theta star (bias corrected MLE)	0.89
nu hat (MLE)	13	nu star (bias corrected)	12.04
MLE Mean (bias corrected)	0.315	MLE Sd (bias corrected)	0.53

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1.244	90% Percentile	0.909
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.225	95% Percentile	1.365
95% WH Approx. Gamma UTL with 95% Coverage	2.252	99% Percentile	2.529
95% HW Approx. Gamma UTL with 95% Coverage	2.433		
95% WH USL	2.232	95% HW USL	2.408

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.904	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.167	**Lilliefors Lognormal GOF Test**

10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	4.835	90% Percentile (z)	0.556
	95% UPL (t)	1.402	95% Percentile (z)	1.068
	95% USL	4.739	99% Percentile (z)	3.63

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	3.2
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	3.2	95% BCA Bootstrap UTL with 95% Coverage	3.2
95% UPL	3.2	90% Percentile	0.626
90% Chebyshev UPL	2.716	95% Percentile	1.352
95% Chebyshev UPL	3.804	99% Percentile	2.83
95% USL	3.2		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	6.7000E-4	First Quartile	9.2000E-4
Second Largest	0.074	Median	0.0028
Maximum	0.27	Third Quartile	0.016
Mean	0.0265	SD	0.0656
Coefficient of Variation	2.472	Skewness	3.608
Mean of logged Data	-5.37	SD of logged Data	1.8

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.446	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.347	**Lilliefors GOF Test**	

1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.19	90% Percentile (z)	0.111
	95% UPL (t)	0.144	95% Percentile (z)	0.134
	95% USL	0.189	99% Percentile (z)	0.179

Gamma GOF Test

A-D Test Statistic	1.472	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.824	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.267	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.224	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.381	k star (bias corrected MLE)	0.353
Theta hat (MLE)	0.0696	Theta star (bias corrected MLE)	0.0751
nu hat (MLE)	12.96	nu star (bias corrected)	12
MLE Mean (bias corrected)	0.0265	MLE Sd (bias corrected)	0.0446

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.105	90% Percentile	0.0765
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.103	95% Percentile	0.115
95% WH Approx. Gamma UTL with 95% Coverage	0.19	99% Percentile	0.213
95% HW Approx. Gamma UTL with 95% Coverage	0.205		
95% WH USL	0.188	95% HW USL	0.203

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.903	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.17	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.408	90% Percentile (z)	0.0467
	95% UPL (t)	0.118	95% Percentile (z)	0.0899
	95% USL	0.4	99% Percentile (z)	0.306

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with	95% Coverage	0.27

Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.27	95% BCA Bootstrap UTL with 95% Coverage	0.27
95% UPL	0.27	90% Percentile	0.0524
90% Chebyshev UPL	0.229	95% Percentile	0.113
95% Chebyshev UPL	0.321	99% Percentile	0.239
95% USL	0.27		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.008	First Quartile	0.011
Second Largest	0.89	Median	0.033
Maximum	3.2	Third Quartile	0.19
Mean	0.315	SD	0.778
Coefficient of Variation	2.468	Skewness	3.6
Mean of logged Data	-2.888	SD of logged Data	1.796

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.446	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.346	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	2.249	90% Percentile (z)	1.312
95% UPL (t)	1.712	95% Percentile (z)	1.594
95% USL	2.24	99% Percentile (z)	2.125

Gamma GOF Test

A-D Test Statistic	1.466	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.824	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.265	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.224	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.382	k star (bias corrected MLE)	0.354
Theta hat (MLE)	0.824	Theta star (bias corrected MLE)	0.89
nu hat (MLE)	13	nu star (bias corrected)	12.04
MLE Mean (bias corrected)	0.315	MLE Sd (bias corrected)	0.53

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1.244	90% Percentile	0.909
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.225	95% Percentile	1.365
95% WH Approx. Gamma UTL with 95% Coverage	2.252	99% Percentile	2.529
95% HW Approx. Gamma UTL with 95% Coverage	2.433		
95% WH USL	2.232	95% HW USL	2.408

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.904	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.167	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	4.835	90% Percentile (z)	0.556
95% UPL (t)	1.402	95% Percentile (z)	1.068
95% USL	4.739	99% Percentile (z)	3.63

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	3.2
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	3.2	95% BCA Bootstrap UTL with 95% Coverage	3.2
95% UPL	3.2	90% Percentile	0.626
90% Chebyshev UPL	2.716	95% Percentile	1.352
95% Chebyshev UPL	3.804	99% Percentile	2.83
95% USL	3.2		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_bmi_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.021	First Quartile	0.034
Second Largest	1.6	Median	0.051
Maximum	4.2	Third Quartile	0.25
Mean	0.492	SD	1.049
Coefficient of Variation	2.133	Skewness	3.161
Mean of logged Data	-2.16	SD of logged Data	1.648

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.512	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.362	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3.101	90% Percentile (z)	1.837
	95% UPL (t)	2.377	95% Percentile (z)	2.218
	95% USL	3.089	99% Percentile (z)	2.933

Gamma GOF Test

A-D Test Statistic	1.474	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.81	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.247	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.223	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.446	k star (bias corrected MLE)	0.406
Theta hat (MLE)	1.104	Theta star (bias corrected MLE)	1.211
nu hat (MLE)	15.15	nu star (bias corrected)	13.81
MLE Mean (bias corrected)	0.492	MLE Sd (bias corrected)	0.772

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		1.948	90% Percentile	1.386
95% Hawkins Wixley (HW) Approx. Gamma UPL		1.948	95% Percentile	2.033
95% WH Approx. Gamma UTL with	95% Coverage	3.438	99% Percentile	3.659
95% HW Approx. Gamma UTL with	95% Coverage	3.739		

95% WH USL	3.409	95% HW USL	3.703

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.884	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.219	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	6.938	90% Percentile (z)	0.953
	95% UPL (t)	2.227	95% Percentile (z)	1.735
	95% USL	6.811	99% Percentile (z)	5.333

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	4.2
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	4.2	95% BCA Bootstrap UTL with	95% Coverage	4.2
	95% UPL	4.2		90% Percentile	1.3
	90% Chebyshev UPL	3.732		95% Percentile	2.12
	95% Chebyshev UPL	5.199		99% Percentile	3.784
	95% USL	4.2			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.008	First Quartile	0.011
Second Largest	0.89	Median	0.033
Maximum	3.2	Third Quartile	0.19
Mean	0.315	SD	0.778
Coefficient of Variation	2.468	Skewness	3.6
Mean of logged Data	-2.888	SD of logged Data	1.796

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.446	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.346	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.249	90% Percentile (z)	1.312
	95% UPL (t)	1.712	95% Percentile (z)	1.594
	95% USL	2.24	99% Percentile (z)	2.125

Gamma GOF Test

A-D Test Statistic	1.466	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.824	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.265	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.224	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.382	k star (bias corrected MLE)	0.354
Theta hat (MLE)	0.824	Theta star (bias corrected MLE)	0.89
nu hat (MLE)	13	nu star (bias corrected)	12.04
MLE Mean (bias corrected)	0.315	MLE Sd (bias corrected)	0.53

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1.244	90% Percentile	0.909
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.225	95% Percentile	1.365
95% WH Approx. Gamma UTL with 95% Coverage	2.252	99% Percentile	2.529
95% HW Approx. Gamma UTL with 95% Coverage	2.433		
95% WH USL	2.232	95% HW USL	2.408

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.904	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.167	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	4.835	90% Percentile (z)	0.556
	95% UPL (t)	1.402	95% Percentile (z)	1.068
	95% USL	4.739	99% Percentile (z)	3.63

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	3.2
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	3.2	95% BCA Bootstrap UTL with 95% Coverage	3.2
95% UPL	3.2	90% Percentile	0.626
90% Chebyshev UPL	2.716	95% Percentile	1.352
95% Chebyshev UPL	3.804	99% Percentile	2.83
95% USL	3.2		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.027	First Quartile	0.045
Second Largest	2.8	Median	0.092
Maximum	5.4	Third Quartile	0.37
Mean	0.728	SD	1.41
Coefficient of Variation	1.938	Skewness	2.738
Mean of logged Data	-1.719	SD of logged Data	1.664

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.567	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.365	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	4.234	90% Percentile (z)	2.535
95% UPL (t)	3.261	95% Percentile (z)	3.047
95% USL	4.218	99% Percentile (z)	4.008

Gamma GOF Test

A-D Test Statistic	1.378	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.807	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.277	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.222	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.459	k star (bias corrected MLE)	0.417
Theta hat (MLE)	1.584	Theta star (bias corrected MLE)	1.743
nu hat (MLE)	15.62	nu star (bias corrected)	14.19
MLE Mean (bias corrected)	0.728	MLE Sd (bias corrected)	1.126

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.923	90% Percentile	2.039
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.965	95% Percentile	2.979
95% WH Approx. Gamma UTL with 95% Coverage	5.131	99% Percentile	5.33
95% HW Approx. Gamma UTL with 95% Coverage	5.671		
95% WH USL	5.088	95% HW USL	5.616

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.891	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.225	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	11.21	90% Percentile (z)	1.511
95% UPL (t)	3.56	95% Percentile (z)	2.766
95% USL	11.01	99% Percentile (z)	8.598

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	5.4
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.4	95% BCA Bootstrap UTL with 95% Coverage	5.4
95% UPL	5.4	90% Percentile	2.08
90% Chebyshev UPL	5.081	95% Percentile	3.32
95% Chebyshev UPL	7.053	99% Percentile	4.984
95% USL	5.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	1	Number of Non-Detects	16
Number of Distinct Detects	1	Number of Distinct Non-Detects	15
Minimum Detect	0.989	Minimum Non-Detect	0.039
Maximum Detect	0.989	Maximum Non-Detect	0.368
Variance Detected	N/A	Percent Non-Detects	94.12%
Mean Detected	0.989	SD Detected	N/A
Mean of Detected Logged Data	-0.0111	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (lead_ug/l_concentration_aquatic plants_awqc) was not processed!

concDL (lead_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	1	Number of Non-Detects	16
Number of Distinct Detects	1	Number of Distinct Non-Detects	15
Minimum Detect	0.989	Minimum Non-Detect	0.039
Maximum Detect	0.989	Maximum Non-Detect	0.368
Variance Detected	N/A	Percent Non-Detects	94.12%
Mean Detected	0.989	SD Detected	N/A
Mean of Detected Logged Data	-0.0111	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (lead_ug/l_concentration_bmi_awqc) was not processed!

concDL (lead_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	1	Number of Non-Detects	16
Number of Distinct Detects	1	Number of Distinct Non-Detects	15
Minimum Detect	0.989	Minimum Non-Detect	0.039
Maximum Detect	0.989	Maximum Non-Detect	0.368
Variance Detected	N/A	Percent Non-Detects	94.12%
Mean Detected	0.989	SD Detected	N/A
Mean of Detected Logged Data	-0.0111	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (lead_ug/l_concentration_fish_awqc) was not processed!

concDL (lead_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	15
Minimum	0.022	First Quartile	0.038
Second Largest	0.23	Median	0.06
Maximum	0.71	Third Quartile	0.14
Mean	0.123	SD	0.164
Coefficient of Variation	1.335	Skewness	3.182
Mean of logged Data	-2.582	SD of logged Data	0.939

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.594	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.269	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.531	90% Percentile (z)	0.333
	95% UPL (t)	0.418	95% Percentile (z)	0.393
	95% USL	0.529	99% Percentile (z)	0.504

Gamma GOF Test

A-D Test Statistic	0.743	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.763	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.172	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.168	k star (bias corrected MLE)	1.001
Theta hat (MLE)	0.105	Theta star (bias corrected MLE)	0.123
nu hat (MLE)	39.71	nu star (bias corrected)	34.04
MLE Mean (bias corrected)	0.123	MLE Sd (bias corrected)	0.123

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.379	90% Percentile	0.283
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.381	95% Percentile	0.368
95% WH Approx. Gamma UTL with 95% Coverage	0.574	99% Percentile	0.566
95% HW Approx. Gamma UTL with 95% Coverage	0.601		
95% WH USL	0.57	95% HW USL	0.597

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.94	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.781	90% Percentile (z)	0.252
95% UPL (t)	0.409	95% Percentile (z)	0.355
95% USL	0.773	99% Percentile (z)	0.673

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.71
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.71	95% BCA Bootstrap UTL with 95% Coverage	0.71
95% UPL	0.71	90% Percentile	0.2
90% Chebyshev UPL	0.629	95% Percentile	0.326
95% Chebyshev UPL	0.859	99% Percentile	0.633
95% USL	0.71		

Table C3-7
ProUCL Output for Porewater BTVs and BTV HQs, Approach D
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	15
Minimum	6.2000E-4	First Quartile	0.0011
Second Largest	0.0058	Median	0.0022
Maximum	0.016	Third Quartile	0.004
Mean	0.00324	SD	0.00364
Coefficient of Variation	1.123	Skewness	2.966
Mean of logged Data	-6.104	SD of logged Data	0.837

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.644	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0123	90% Percentile (z)	0.00791
	95% UPL (t)	0.00978	95% Percentile (z)	0.00923
	95% USL	0.0122	99% Percentile (z)	0.0117

Gamma GOF Test

A-D Test Statistic	0.587	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.756	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.156	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.488	k star (bias corrected MLE)	1.264
Theta hat (MLE)	0.00218	Theta star (bias corrected MLE)	0.00256
nu hat (MLE)	50.58	nu star (bias corrected)	42.99
MLE Mean (bias corrected)	0.00324	MLE Sd (bias corrected)	0.00288

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00926	90% Percentile	0.00704
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.00935	95% Percentile	0.00895
95% WH Approx. Gamma UTL with 95% Coverage	0.0136	99% Percentile	0.0133
95% HW Approx. Gamma UTL with 95% Coverage	0.0142		
95% WH USL	0.0135	95% HW USL	0.0141

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.958	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.123	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0179	90% Percentile (z)	0.00653
95% UPL (t)	0.01	95% Percentile (z)	0.00884
95% USL	0.0177	99% Percentile (z)	0.0156

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.016
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.016	95% BCA Bootstrap UTL with 95% Coverage	0.016
95% UPL	0.016	90% Percentile	0.00526
90% Chebyshev UPL	0.0145	95% Percentile	0.00784
95% Chebyshev UPL	0.0196	99% Percentile	0.0144
95% USL	0.016		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	15
Minimum	0.022	First Quartile	0.038
Second Largest	0.23	Median	0.06
Maximum	0.71	Third Quartile	0.14

Mean	0.123	SD	0.164
Coefficient of Variation	1.335	Skewness	3.182
Mean of logged Data	-2.582	SD of logged Data	0.939

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.594	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.269	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.531	90% Percentile (z)	0.333
	95% UPL (t)	0.418	95% Percentile (z)	0.393
	95% USL	0.529	99% Percentile (z)	0.504

Gamma GOF Test

A-D Test Statistic	0.743	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.763	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.172	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.168	k star (bias corrected MLE)	1.001
Theta hat (MLE)	0.105	Theta star (bias corrected MLE)	0.123
nu hat (MLE)	39.71	nu star (bias corrected)	34.04
MLE Mean (bias corrected)	0.123	MLE Sd (bias corrected)	0.123

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.379	90% Percentile	0.283
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.381	95% Percentile	0.368
95% WH Approx. Gamma UTL with	95% Coverage	0.574	99% Percentile	0.566
95% HW Approx. Gamma UTL with	95% Coverage	0.601		
	95% WH USL	0.57	95% HW USL	0.597

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.94	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.781	90% Percentile (z)	0.252
	95% UPL (t)	0.409	95% Percentile (z)	0.355
	95% USL	0.773	99% Percentile (z)	0.673

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	0.71
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.71	95% BCA Bootstrap UTL with 95% Coverage	0.71
	95% UPL	0.71	90% Percentile	0.2
	90% Chebyshev UPL	0.629	95% Percentile	0.326
	95% Chebyshev UPL	0.859	99% Percentile	0.633
	95% USL	0.71		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	15
Minimum	0.022	First Quartile	0.038
Second Largest	0.23	Median	0.06
Maximum	0.71	Third Quartile	0.14
Mean	0.123	SD	0.164
Coefficient of Variation	1.335	Skewness	3.182
Mean of logged Data	-2.582	SD of logged Data	0.939

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.594	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.269	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.531		90% Percentile (z)	0.333
	95% UPL (t)	0.418		95% Percentile (z)	0.393
	95% USL	0.529		99% Percentile (z)	0.504

Gamma GOF Test

A-D Test Statistic	0.743	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.763	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.172	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.168	k star (bias corrected MLE)	1.001
Theta hat (MLE)	0.105	Theta star (bias corrected MLE)	0.123
nu hat (MLE)	39.71	nu star (bias corrected)	34.04
MLE Mean (bias corrected)	0.123	MLE Sd (bias corrected)	0.123

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.379		90% Percentile	0.283
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.381		95% Percentile	0.368
95% WH Approx. Gamma UTL with	95% Coverage	0.574		99% Percentile	0.566
95% HW Approx. Gamma UTL with	95% Coverage	0.601			
	95% WH USL	0.57		95% HW USL	0.597

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.94	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.781		90% Percentile (z)	0.252
	95% UPL (t)	0.409		95% Percentile (z)	0.355
	95% USL	0.773		99% Percentile (z)	0.673

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17		95% UTL with 95% Coverage	0.71
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
		Approximate Sample Size needed to achieve specified CC		59

95% Percentile Bootstrap UTL with	95% Coverage	0.71	95% BCA Bootstrap UTL with	95% Coverage	0.71
	95% UPL	0.71		90% Percentile	0.2
	90% Chebyshev UPL	0.629		95% Percentile	0.326
	95% Chebyshev UPL	0.859		99% Percentile	0.633
	95% USL	0.71			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	6.1000E-4	First Quartile	0.0011
Second Largest	0.0064	Median	0.0017
Maximum	0.019	Third Quartile	0.0039
Mean	0.00338	SD	0.0044
Coefficient of Variation	1.301	Skewness	3.109
Mean of logged Data	-6.165	SD of logged Data	0.934

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.608	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0143		90% Percentile (z)	0.00901
	95% UPL (t)	0.0113		95% Percentile (z)	0.0106
	95% USL	0.0143		99% Percentile (z)	0.0136

Gamma GOF Test

A-D Test Statistic	0.701	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.762	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.167	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.192	k star (bias corrected MLE)	1.021
Theta hat (MLE)	0.00283	Theta star (bias corrected MLE)	0.00331
nu hat (MLE)	40.53	nu star (bias corrected)	34.71
MLE Mean (bias corrected)	0.00338	MLE Sd (bias corrected)	0.00334

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0104	90% Percentile	0.00774
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0105	95% Percentile	0.01
95% WH Approx. Gamma UTL with 95% Coverage	0.0157	99% Percentile	0.0154
95% HW Approx. Gamma UTL with 95% Coverage	0.0164		
95% WH USL	0.0156	95% HW USL	0.0163

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.119	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0214	90% Percentile (z)	0.00696
95% UPL (t)	0.0113	95% Percentile (z)	0.00977
95% USL	0.0212	99% Percentile (z)	0.0185

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.019
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.019	95% BCA Bootstrap UTL with 95% Coverage	0.019
95% UPL	0.019	90% Percentile	0.00562
90% Chebyshev UPL	0.017	95% Percentile	0.00892
95% Chebyshev UPL	0.0231	99% Percentile	0.017
95% USL	0.019		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	15
Minimum	0.0021	First Quartile	0.0038
Second Largest	0.026	Median	0.0064
Maximum	0.076	Third Quartile	0.014
Mean	0.013	SD	0.0177
Coefficient of Variation	1.367	Skewness	3.137
Mean of logged Data	-4.863	SD of logged Data	0.97

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.598	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.27	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.057	90% Percentile (z)	0.0357
95% UPL (t)	0.0448	95% Percentile (z)	0.0421
95% USL	0.0568	99% Percentile (z)	0.0542

Gamma GOF Test

A-D Test Statistic	0.741	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.764	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.158	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.105	k star (bias corrected MLE)	0.949
Theta hat (MLE)	0.0117	Theta star (bias corrected MLE)	0.0136
nu hat (MLE)	37.56	nu star (bias corrected)	32.27
MLE Mean (bias corrected)	0.013	MLE Sd (bias corrected)	0.0133

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0407	90% Percentile	0.0302
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.041	95% Percentile	0.0395
95% WH Approx. Gamma UTL with 95% Coverage	0.0621	99% Percentile	0.0612
95% HW Approx. Gamma UTL with 95% Coverage	0.0653		
95% WH USL	0.0617	95% HW USL	0.0648

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.946	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.147	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0862	90% Percentile (z)	0.0268
	95% UPL (t)	0.0442	95% Percentile (z)	0.0381
	95% USL	0.0853	99% Percentile (z)	0.0739

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	0.076
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.076	95% BCA Bootstrap UTL with 95% Coverage	0.076
	95% UPL	0.076	90% Percentile	0.0224
	90% Chebyshev UPL	0.0676	95% Percentile	0.036
	95% Chebyshev UPL	0.0924	99% Percentile	0.068
	95% USL	0.076		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (magnesium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	2480	First Quartile	3323
Second Largest	7260	Median	4070
Maximum	7420	Third Quartile	5403
Mean	4447	SD	1477
Coefficient of Variation	0.332	Skewness	0.782
Mean of logged Data	8.35	SD of logged Data	0.321

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.919	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.183	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	8071	90% Percentile (z)	6340
	95% UPL (t)	7087	95% Percentile (z)	6877
	95% USL	8146	99% Percentile (z)	7883

Gamma GOF Test

A-D Test Statistic	0.345	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.148	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.28	k star (bias corrected MLE)	8.6
Theta hat (MLE)	432.7	Theta star (bias corrected MLE)	517.1
nu hat (MLE)	369.9	nu star (bias corrected)	309.6
MLE Mean (bias corrected)	4447	MLE Sd (bias corrected)	1516

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		7313	90% Percentile	6467
95% Hawkins Wixley (HW) Approx. Gamma UPL		7355	95% Percentile	7198
95% WH Approx. Gamma UTL with	95% Coverage	8720	99% Percentile	8709
95% HW Approx. Gamma UTL with	95% Coverage	8840		
	95% WH USL	8834	95% HW USL	8963

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.963	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	9291	90% Percentile (z)	6382
	95% UPL (t)	7505	95% Percentile (z)	7170
	95% USL	9444	99% Percentile (z)	8921

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	7420
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7420	95% BCA Bootstrap UTL with 95% Coverage	7420
95% UPL	7420	90% Percentile	6490
90% Chebyshev UPL	9000	95% Percentile	7284
95% Chebyshev UPL	11063	99% Percentile	7393
95% USL	7420		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.92	Minimum Non-Detect	0.79
Maximum Detect	716	Maximum Non-Detect	1.93
Variance Detected	74079	Percent Non-Detects	22.22%
Mean Detected	265.9	SD Detected	272.2
Mean of Detected Logged Data	4.289	SD of Detected Logged Data	2.196

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.85	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	207	KM SD	256.2
95% UTL95% Coverage	835.5	95% KM UPL (t)	664.9
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.4

99% KM Percentile (z)	803	95% KM USL	848.6

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.9	SD	263.7
95% UTL95% Coverage	853.7	95% UPL (t)	678.2
90% Percentile (z)	544.9	95% Percentile (z)	640.7
99% Percentile (z)	820.3	95% USL	867.2

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.851	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.795	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.206	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.492	k star (bias corrected MLE)	0.434
Theta hat (MLE)	540.4	Theta star (bias corrected MLE)	612.3
nu hat (MLE)	13.78	nu star (bias corrected)	12.16
MLE Mean (bias corrected)	265.9		
MLE Sd (bias corrected)	403.5	95% Percentile of Chisquare (2kstar)	3.507

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2.92	Mean	208
Maximum	716	Median	22.85
SD	262.8	CV	1.264
k hat (MLE)	0.402	k star (bias corrected MLE)	0.372
Theta hat (MLE)	516.8	Theta star (bias corrected MLE)	558.5
nu hat (MLE)	14.49	nu star (bias corrected)	13.41
MLE Mean (bias corrected)	208	MLE Sd (bias corrected)	340.8
95% Percentile of Chisquare (2kstar)	3.171	90% Percentile	594.7
95% Percentile	885.6	99% Percentile	1623

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1640	2058	95% Approx. Gamma UPL	938.3	1054
95% Gamma USL	1705	2156			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	207	SD (KM)	256.2
Variance (KM)	65648	SE of Mean (KM)	62.67
k hat (KM)	0.653	k star (KM)	0.581
nu hat (KM)	23.49	nu star (KM)	20.91
theta hat (KM)	317.2	theta star (KM)	356.3
80% gamma percentile (KM)	341.2	90% gamma percentile (KM)	542.2
95% gamma percentile (KM)	753.5	99% gamma percentile (KM)	1266

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1662	2164	95% Approx. Gamma UPL	934.9	1075
95% KM Gamma Percentile	813.7	909.5	95% Gamma USL	1729	2272

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.83	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.246	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.9	Mean in Log Scale	3.235
SD in Original Scale	263.7	SD in Log Scale	2.794
95% UTL95% Coverage	24058	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3745
90% Percentile (z)	911.6	95% Percentile (z)	2516
99% Percentile (z)	16888	95% USL	27743

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.283	95% KM UTL (Lognormal)95% Coverage	17724
KM SD of Logged Data	2.649	95% KM UPL (Lognormal)	3038
95% KM Percentile Lognormal (z)	2083	95% KM USL (Lognormal)	20289

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.9	Mean in Log Scale	3.218
SD in Original Scale	263.7	SD in Log Scale	2.822
95% UTL95% Coverage	25350	95% UPL (t)	3873
90% Percentile (z)	929.6	95% Percentile (z)	2591
99% Percentile (z)	17732	95% USL	29275

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	716
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1354

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.92	Minimum Non-Detect	0.79
Maximum Detect	716	Maximum Non-Detect	1.93
Variance Detected	74079	Percent Non-Detects	22.22%
Mean Detected	265.9	SD Detected	272.2
Mean of Detected Logged Data	4.289	SD of Detected Logged Data	2.196

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.85	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	207	KM SD	256.2
95% UTL95% Coverage	835.5	95% KM UPL (t)	664.9
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.4
99% KM Percentile (z)	803	95% KM USL	848.6

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.9	SD	263.7
95% UTL95% Coverage	853.7	95% UPL (t)	678.2
90% Percentile (z)	544.9	95% Percentile (z)	640.7

99% Percentile (z)	820.3	95% USL	867.2

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.851	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.795	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.206	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.492	k star (bias corrected MLE)	0.434
Theta hat (MLE)	540.4	Theta star (bias corrected MLE)	612.3
nu hat (MLE)	13.78	nu star (bias corrected)	12.16
MLE Mean (bias corrected)	265.9		
MLE Sd (bias corrected)	403.5	95% Percentile of Chisquare (2kstar)	3.507

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

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For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2.92	Mean	208
Maximum	716	Median	22.85
SD	262.8	CV	1.264
k hat (MLE)	0.402	k star (bias corrected MLE)	0.372
Theta hat (MLE)	516.8	Theta star (bias corrected MLE)	558.5
nu hat (MLE)	14.49	nu star (bias corrected)	13.41
MLE Mean (bias corrected)	208	MLE Sd (bias corrected)	340.8
95% Percentile of Chisquare (2kstar)	3.171	90% Percentile	594.7
95% Percentile	885.6	99% Percentile	1623

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1640	2058	95% Approx. Gamma UPL	938.3	1054
95% Gamma USL	1705	2156			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	207	SD (KM)	256.2
Variance (KM)	65648	SE of Mean (KM)	62.67
k hat (KM)	0.653	k star (KM)	0.581
nu hat (KM)	23.49	nu star (KM)	20.91
theta hat (KM)	317.2	theta star (KM)	356.3
80% gamma percentile (KM)	341.2	90% gamma percentile (KM)	542.2

95% gamma percentile (KM)	753.5	99% gamma percentile (KM)	1266

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1662	2164	95% Approx. Gamma UPL	934.9	1075
95% KM Gamma Percentile	813.7	909.5	95% Gamma USL	1729	2272

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.83	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.246	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.9	Mean in Log Scale	3.235
SD in Original Scale	263.7	SD in Log Scale	2.794
95% UTL95% Coverage	24058	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3745
90% Percentile (z)	911.6	95% Percentile (z)	2516
99% Percentile (z)	16888	95% USL	27743

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.283	95% KM UTL (Lognormal)95% Coverage	17724
KM SD of Logged Data	2.649	95% KM UPL (Lognormal)	3038
95% KM Percentile Lognormal (z)	2083	95% KM USL (Lognormal)	20289

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.9	Mean in Log Scale	3.218
SD in Original Scale	263.7	SD in Log Scale	2.822
95% UTL95% Coverage	25350	95% UPL (t)	3873
90% Percentile (z)	929.6	95% Percentile (z)	2591
99% Percentile (z)	17732	95% USL	29275

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Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1354

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concDL (manganese_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.92	Minimum Non-Detect	0.79
Maximum Detect	716	Maximum Non-Detect	1.93
Variance Detected	74079	Percent Non-Detects	22.22%
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Detected Data appear Normal at 1% Significance Level

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KM Mean	207	KM SD	256.2
95% UTL95% Coverage	835.5	95% KM UPL (t)	664.9
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.4
99% KM Percentile (z)	803	95% KM USL	848.6

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.9	SD	263.7
95% UTL95% Coverage	853.7	95% UPL (t)	678.2
90% Percentile (z)	544.9	95% Percentile (z)	640.7
99% Percentile (z)	820.3	95% USL	867.2

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A-D Test Statistic	0.851	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.795	Data Not Gamma Distributed at 5% Significance Level

K-S Test Statistic	0.206	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.492	k star (bias corrected MLE)	0.434
Theta hat (MLE)	540.4	Theta star (bias corrected MLE)	612.3
nu hat (MLE)	13.78	nu star (bias corrected)	12.16
MLE Mean (bias corrected)	265.9		
MLE Sd (bias corrected)	403.5	95% Percentile of Chisquare (2kstar)	3.507

Gamma ROS Statistics using Imputed Non-Detects

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For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2.92	Mean	208
Maximum	716	Median	22.85
SD	262.8	CV	1.264
k hat (MLE)	0.402	k star (bias corrected MLE)	0.372
Theta hat (MLE)	516.8	Theta star (bias corrected MLE)	558.5
nu hat (MLE)	14.49	nu star (bias corrected)	13.41
MLE Mean (bias corrected)	208	MLE Sd (bias corrected)	340.8
95% Percentile of Chisquare (2kstar)	3.171	90% Percentile	594.7
95% Percentile	885.6	99% Percentile	1623

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1640	2058	95% Approx. Gamma UPL	938.3	1054
95% Gamma USL	1705	2156			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	207	SD (KM)	256.2
Variance (KM)	65648	SE of Mean (KM)	62.67
k hat (KM)	0.653	k star (KM)	0.581
nu hat (KM)	23.49	nu star (KM)	20.91
theta hat (KM)	317.2	theta star (KM)	356.3
80% gamma percentile (KM)	341.2	90% gamma percentile (KM)	542.2
95% gamma percentile (KM)	753.5	99% gamma percentile (KM)	1266

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1662	2164	95% Approx. Gamma UPL	934.9	1075

95% KM Gamma Percentile	813.7	909.5	95% Gamma USL	1729	2272

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.83	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.246	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.9	Mean in Log Scale	3.235
SD in Original Scale	263.7	SD in Log Scale	2.794
95% UTL95% Coverage	24058	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3745
90% Percentile (z)	911.6	95% Percentile (z)	2516
99% Percentile (z)	16888	95% USL	27743

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.283	95% KM UTL (Lognormal)95% Coverage	17724
KM SD of Logged Data	2.649	95% KM UPL (Lognormal)	3038
95% KM Percentile Lognormal (z)	2083	95% KM USL (Lognormal)	20289

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.9	Mean in Log Scale	3.218
SD in Original Scale	263.7	SD in Log Scale	2.822
95% UTL95% Coverage	25350	95% UPL (t)	3873
90% Percentile (z)	929.6	95% Percentile (z)	2591
99% Percentile (z)	17732	95% USL	29275

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	716
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1354

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	4.9000E-4	First Quartile	0.00233
Second Largest	0.39	Median	0.0119
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.238	Skewness	0.867
Mean of logged Data	-3.959	SD of logged Data	2.552

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.316	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.516	90% Percentile (z)	0.33
95% UPL (t)	0.41	95% Percentile (z)	0.388
95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.276	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.831	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.225	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.219	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.353	k star (bias corrected MLE)	0.331
Theta hat (MLE)	0.362	Theta star (bias corrected MLE)	0.385
nu hat (MLE)	12.71	nu star (bias corrected)	11.93
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.222

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.599	90% Percentile	0.372
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.69	95% Percentile	0.566
95% WH Approx. Gamma UTL with 95% Coverage	1.064	99% Percentile	1.063
95% HW Approx. Gamma UTL with 95% Coverage	1.384		
95% WH USL	1.107	95% HW USL	1.453

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.853	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	9.978	90% Percentile (z)	0.502
	95% UPL (t)	1.825	95% Percentile (z)	1.269
	95% USL	11.37	99% Percentile (z)	7.222

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	18	95% UTL with	95% Coverage	0.47
	Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.47	95% BCA Bootstrap UTL with	95% Coverage	0.47
	95% UPL	0.47		90% Percentile	0.334
	90% Chebyshev UPL	0.615		95% Percentile	0.402
	95% Chebyshev UPL	0.836		99% Percentile	0.456
	95% USL	0.47			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	4.9000E-5	First Quartile	1.9000E-4
Second Largest	0.044	Median	0.0014
Maximum	0.045	Third Quartile	0.0233
Mean	0.0129	SD	0.0165
Coefficient of Variation	1.278	Skewness	0.96
Mean of logged Data	-6.313	SD of logged Data	2.611

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.773	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.305	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0533	90% Percentile (z)	0.034
	95% UPL (t)	0.0423	95% Percentile (z)	0.04
	95% USL	0.0542	99% Percentile (z)	0.0512

Gamma GOF Test

A-D Test Statistic	1.082	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.833	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.22	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.344	k star (bias corrected MLE)	0.323
Theta hat (MLE)	0.0375	Theta star (bias corrected MLE)	0.0399
nu hat (MLE)	12.37	nu star (bias corrected)	11.64
MLE Mean (bias corrected)	0.0129	MLE Sd (bias corrected)	0.0227

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0606	90% Percentile	0.0377
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0698	95% Percentile	0.0576
95% WH Approx. Gamma UTL with	95% Coverage	0.108	99% Percentile	0.109
95% HW Approx. Gamma UTL with	95% Coverage	0.141		
	95% WH USL	0.112	95% HW USL	0.148

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.861	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.21	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.097	90% Percentile (z)	0.0515
	95% UPL (t)	0.193	95% Percentile (z)	0.133
	95% USL	1.253	99% Percentile (z)	0.788

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.045
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.045	95% BCA Bootstrap UTL with 95% Coverage	0.045
95% UPL	0.045	90% Percentile	0.0398
90% Chebyshev UPL	0.0637	95% Percentile	0.0442
95% Chebyshev UPL	0.0867	99% Percentile	0.0448
95% USL	0.045		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	4.9000E-4	First Quartile	0.00233
Second Largest	0.39	Median	0.0119
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.238	Skewness	0.867
Mean of logged Data	-3.959	SD of logged Data	2.552

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.316	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.516	90% Percentile (z)	0.33
95% UPL (t)	0.41	95% Percentile (z)	0.388
95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.276	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.831	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.225	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.219	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.353	k star (bias corrected MLE)	0.331
Theta hat (MLE)	0.362	Theta star (bias corrected MLE)	0.385
nu hat (MLE)	12.71	nu star (bias corrected)	11.93
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.222

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.599	90% Percentile	0.372
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.69	95% Percentile	0.566
95% WH Approx. Gamma UTL with 95% Coverage	1.064	99% Percentile	1.063
95% HW Approx. Gamma UTL with 95% Coverage	1.384		
95% WH USL	1.107	95% HW USL	1.453

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.853	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	9.978	90% Percentile (z)	0.502
95% UPL (t)	1.825	95% Percentile (z)	1.269
95% USL	11.37	99% Percentile (z)	7.222

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.47	95% BCA Bootstrap UTL with 95% Coverage	0.47
95% UPL	0.47	90% Percentile	0.334
90% Chebyshev UPL	0.615	95% Percentile	0.402
95% Chebyshev UPL	0.836	99% Percentile	0.456
95% USL	0.47		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	4.9000E-4	First Quartile	0.00233
Second Largest	0.39	Median	0.0119
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.238	Skewness	0.867
Mean of logged Data	-3.959	SD of logged Data	2.552

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.316	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.516	90% Percentile (z)	0.33
	95% UPL (t)	0.41	95% Percentile (z)	0.388
	95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.276	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.831	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.225	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.219	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.353	k star (bias corrected MLE)	0.331
Theta hat (MLE)	0.362	Theta star (bias corrected MLE)	0.385
nu hat (MLE)	12.71	nu star (bias corrected)	11.93
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.222

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.599	90% Percentile	0.372
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.69	95% Percentile	0.566
95% WH Approx. Gamma UTL with 95% Coverage	1.064	99% Percentile	1.063
95% HW Approx. Gamma UTL with 95% Coverage	1.384		
95% WH USL	1.107	95% HW USL	1.453

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.853	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	9.978	90% Percentile (z)	0.502
95% UPL (t)	1.825	95% Percentile (z)	1.269
95% USL	11.37	99% Percentile (z)	7.222

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.47	95% BCA Bootstrap UTL with 95% Coverage	0.47
95% UPL	0.47	90% Percentile	0.334
90% Chebyshev UPL	0.615	95% Percentile	0.402
95% Chebyshev UPL	0.836	99% Percentile	0.456
95% USL	0.47		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (ph_su_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	6.65	First Quartile	6.838
Second Largest	7.33	Median	7.03
Maximum	7.44	Third Quartile	7.173

Mean	7.013	SD	0.237
Coefficient of Variation	0.0338	Skewness	-0.0203
Mean of logged Data	1.947	SD of logged Data	0.0338

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.961	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	7.595	90% Percentile (z)	7.317
	95% UPL (t)	7.437	95% Percentile (z)	7.403
	95% USL	7.607	99% Percentile (z)	7.565

Gamma GOF Test

A-D Test Statistic	0.281	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.737	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.134	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	925.3	k star (bias corrected MLE)	771.1
Theta hat (MLE)	0.00758	Theta star (bias corrected MLE)	0.00909
nu hat (MLE)	33311	nu star (bias corrected)	27761
MLE Mean (bias corrected)	7.013	MLE Sd (bias corrected)	0.253

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		7.443	90% Percentile	7.339
95% Hawkins Wixley (HW) Approx. Gamma UPL		7.444	95% Percentile	7.434
95% WH Approx. Gamma UTL with	95% Coverage	7.609	99% Percentile	7.614
95% HW Approx. Gamma UTL with	95% Coverage	7.611		
	95% WH USL	7.622	95% HW USL	7.624

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.96	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.132	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	7.616	90% Percentile (z)		7.32
	95% UPL (t)	7.447	95% Percentile (z)		7.411
	95% USL	7.629	99% Percentile (z)		7.584

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	7.44
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	7.44	95% BCA Bootstrap UTL with	95% Coverage	7.44
	95% UPL	7.44		90% Percentile	7.288
	90% Chebyshev UPL	7.744		95% Percentile	7.347
	95% Chebyshev UPL	8.075		99% Percentile	7.421
	95% USL	7.44			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (potassium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	700	First Quartile	800
Second Largest	2700	Median	1280
Maximum	2880	Third Quartile	2000
Mean	1501	SD	753.4
Coefficient of Variation	0.502	Skewness	0.59
Mean of logged Data	7.193	SD of logged Data	0.509

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.881	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.173	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3374		90% Percentile (z)	2467
	95% UPL (t)	2855		95% Percentile (z)	2740
	95% USL	3366		99% Percentile (z)	3254

Gamma GOF Test

A-D Test Statistic	0.654	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.193	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.309	k star (bias corrected MLE)	3.588
Theta hat (MLE)	348.4	Theta star (bias corrected MLE)	418.4
nu hat (MLE)	146.5	nu star (bias corrected)	122
MLE Mean (bias corrected)	1501	MLE Sd (bias corrected)	792.6

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		3088		90% Percentile	2564
95% Hawkins Wixley (HW) Approx. Gamma UPL		3135		95% Percentile	2996
95% WH Approx. Gamma UTL with	95% Coverage	3998		99% Percentile	3925
95% HW Approx. Gamma UTL with	95% Coverage	4135			
	95% WH USL	3982		95% HW USL	4117

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.899	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.188	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	4717		90% Percentile (z)	2555
	95% UPL (t)	3321		95% Percentile (z)	3074
	95% USL	4690		99% Percentile (z)	4348

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17		95% UTL with 95% Coverage	2880
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59

95% Percentile Bootstrap UTL with	95% Coverage	2880	95% BCA Bootstrap UTL with	95% Coverage	2880
	95% UPL	2880		90% Percentile	2658
	90% Chebyshev UPL	3827		95% Percentile	2736
	95% Chebyshev UPL	4880		99% Percentile	2851
	95% USL	2880			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sodium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	16	Number of Non-Detects	2
Number of Distinct Detects	15	Number of Distinct Non-Detects	2
Minimum Detect	1600	Minimum Non-Detect	940
Maximum Detect	5190	Maximum Non-Detect	1130
Variance Detected	1167113	Percent Non-Detects	11.11%
Mean Detected	2729	SD Detected	1080
Mean of Detected Logged Data	7.848	SD of Detected Logged Data	0.355

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.834	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2531	KM SD	1135
95% UTL95% Coverage	5315	95% KM UPL (t)	4560
90% KM Percentile (z)	3985	95% KM Percentile (z)	4398
99% KM Percentile (z)	5172	95% KM USL	5373

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2484	SD	1242
95% UTL95% Coverage	5529	95% UPL (t)	4703
90% Percentile (z)	4075	95% Percentile (z)	4526

99% Percentile (z)	5372	95% USL	5593

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.896	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.74	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.222	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.215	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	8.038	k star (bias corrected MLE)	6.573
Theta hat (MLE)	339.6	Theta star (bias corrected MLE)	415.3
nu hat (MLE)	257.2	nu star (bias corrected)	210.3
MLE Mean (bias corrected)	2729		
MLE Sd (bias corrected)	1065	95% Percentile of Chisquare (2kstar)	22.56

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	720.6	Mean	2506
Maximum	5190	Median	2175
SD	1205	CV	0.481
k hat (MLE)	4.358	k star (bias corrected MLE)	3.669
Theta hat (MLE)	575	Theta star (bias corrected MLE)	683.1
nu hat (MLE)	156.9	nu star (bias corrected)	132.1
MLE Mean (bias corrected)	2506	MLE Sd (bias corrected)	1308
95% Percentile of Chisquare (2kstar)	14.56	90% Percentile	4260
95% Percentile	4972	99% Percentile	6498

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	6545	6822	95% Approx. Gamma UPL	5109	5222
95% Gamma USL	6665	6958			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2531	SD (KM)	1135
Variance (KM)	1288827	SE of Mean (KM)	276.4
k hat (KM)	4.969	k star (KM)	4.178
nu hat (KM)	178.9	nu star (KM)	150.4
theta hat (KM)	509.3	theta star (KM)	605.7
80% gamma percentile (KM)	3472	90% gamma percentile (KM)	4190

95% gamma percentile (KM)	4850	99% gamma percentile (KM)	6256

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	6047	6216	95% Approx. Gamma UPL	4821	4883
95% KM Gamma Percentile	4582	4628	95% Gamma USL	6149	6328

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.9	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.906	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.205	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.196	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2552	Mean in Log Scale	7.757
SD in Original Scale	1139	SD in Log Scale	0.426
95% UTL95% Coverage	6648	95% BCA UTL95% Coverage	5190
95% Bootstrap (%) UTL95% Coverage	5190	95% UPL (t)	5007
90% Percentile (z)	4037	95% Percentile (z)	4712
99% Percentile (z)	6299	95% USL	6794

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	7.737	95% KM UTL (Lognormal)95% Coverage	6948
KM SD of Logged Data	0.452	95% KM UPL (Lognormal)	5142
95% KM Percentile Lognormal (z)	4821	95% KM USL (Lognormal)	7110

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2484	Mean in Log Scale	7.67
SD in Original Scale	1242	SD in Log Scale	0.618
95% UTL95% Coverage	9749	95% UPL (t)	6463
90% Percentile (z)	4729	95% Percentile (z)	5919
99% Percentile (z)	9015	95% USL	10061

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	5190
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5190
95% USL	5190	95% KM Chebyshev UPL	7615

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sulfate_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	3.83	First Quartile	9.303
Second Largest	28.5	Median	12.45
Maximum	35.4	Third Quartile	20.2
Mean	15.66	SD	8.692
Coefficient of Variation	0.555	Skewness	0.793
Mean of logged Data	2.597	SD of logged Data	0.591

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	36.98	90% Percentile (z)	26.8
	95% UPL (t)	31.19	95% Percentile (z)	29.95
	95% USL	37.42	99% Percentile (z)	35.88

Gamma GOF Test

A-D Test Statistic	0.206	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.136	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.205	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.406	k star (bias corrected MLE)	2.876
Theta hat (MLE)	4.596	Theta star (bias corrected MLE)	5.444
nu hat (MLE)	122.6	nu star (bias corrected)	103.5
MLE Mean (bias corrected)	15.66	MLE Sd (bias corrected)	9.233

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	34.35	90% Percentile	28.03
95% Hawkins Wixley (HW) Approx. Gamma UPL	35.13	95% Percentile	33.26
95% WH Approx. Gamma UTL with 95% Coverage	45.12	99% Percentile	44.62
95% HW Approx. Gamma UTL with 95% Coverage	47.19		
95% WH USL	46.03	95% HW USL	48.23

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.978	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.111	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	57.16	90% Percentile (z)	28.61
95% UPL (t)	38.58	95% Percentile (z)	35.46
95% USL	58.91	99% Percentile (z)	53.04

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	35.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	35.4	95% BCA Bootstrap UTL with 95% Coverage	35.4
95% UPL	35.4	90% Percentile	27.24
90% Chebyshev UPL	42.45	95% Percentile	29.54
95% Chebyshev UPL	54.58	99% Percentile	34.23
95% USL	35.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	3	Number of Distinct Non-Detects	11

Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	6.8	Maximum Non-Detect	2.5
Variance Detected	1.223	Percent Non-Detects	76.47%
Mean Detected	5.375	SD Detected	1.106
Mean of Detected Logged Data	1.666	SD of Detected Logged Data	0.207

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2.106	KM SD	1.872
95% UTL95% Coverage	6.759	95% KM UPL (t)	5.469
90% KM Percentile (z)	4.505	95% KM Percentile (z)	5.185
99% KM Percentile (z)	6.461	95% KM USL	6.739

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.941	SD	2.029
95% UTL95% Coverage	6.986	95% UPL (t)	5.586
90% Percentile (z)	4.542	95% Percentile (z)	5.279
99% Percentile (z)	6.662	95% USL	6.963

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.331	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.258	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	31.56	k star (bias corrected MLE)	8.056
Theta hat (MLE)	0.17	Theta star (bias corrected MLE)	0.667
nu hat (MLE)	252.5	nu star (bias corrected)	64.45
MLE Mean (bias corrected)	5.375		
MLE Sd (bias corrected)	1.894	95% Percentile of Chisquare (2kstar)	26.44

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	2.055
Maximum	6.8	Median	1.011
SD	2	CV	0.973
k hat (MLE)	1.056	k star (bias corrected MLE)	0.909
Theta hat (MLE)	1.945	Theta star (bias corrected MLE)	2.26
nu hat (MLE)	35.92	nu star (bias corrected)	30.91
MLE Mean (bias corrected)	2.055	MLE Sd (bias corrected)	2.155
95% Percentile of Chisquare (2kstar)	5.634	90% Percentile	4.844
95% Percentile	6.368	99% Percentile	9.931

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	9.974	11.62	95% Approx. Gamma UPL	6.588	7.207
95% Gamma USL	9.911	11.53			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.106	SD (KM)	1.872
Variance (KM)	3.504	SE of Mean (KM)	0.524
k hat (KM)	1.266	k star (KM)	1.081
nu hat (KM)	43.03	nu star (KM)	36.77
theta hat (KM)	1.664	theta star (KM)	1.947
80% gamma percentile (KM)	3.367	90% gamma percentile (KM)	4.756
95% gamma percentile (KM)	6.137	99% gamma percentile (KM)	9.325

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.56	7.734	95% Approx. Gamma UPL	5.37	5.358
95% KM Gamma Percentile	4.953	4.919	95% Gamma USL	7.52	7.69

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2.946	Mean in Log Scale	0.989
SD in Original Scale	1.488	SD in Log Scale	0.412
95% UTL95% Coverage	7.479	95% BCA UTL95% Coverage	6.8

95% Bootstrap (%) UTL95% Coverage	6.8	95% UPL (t)	5.631
90% Percentile (z)	4.556	95% Percentile (z)	5.29
99% Percentile (z)	7.003	95% USL	7.445

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.465	95% KM UTL (Lognormal)95% Coverage	8.457
KM SD of Logged Data	0.672	95% KM UPL (Lognormal)	5.322
95% KM Percentile Lognormal (z)	4.806	95% KM USL (Lognormal)	8.394

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.941	Mean in Log Scale	0.278
SD in Original Scale	2.029	SD in Log Scale	0.826
95% UTL95% Coverage	10.28	95% UPL (t)	5.818
90% Percentile (z)	3.803	95% Percentile (z)	5.134
99% Percentile (z)	9.011	95% USL	10.19

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	6.8
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	6.8
95% USL	6.8	95% KM Chebyshev UPL	10.5

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	3	Number of Distinct Non-Detects	11
Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	6.8	Maximum Non-Detect	2.5
Variance Detected	1.223	Percent Non-Detects	76.47%
Mean Detected	5.375	SD Detected	1.106
Mean of Detected Logged Data	1.666	SD of Detected Logged Data	0.207

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2.106	KM SD	1.872
95% UTL95% Coverage	6.759	95% KM UPL (t)	5.469
90% KM Percentile (z)	4.505	95% KM Percentile (z)	5.185
99% KM Percentile (z)	6.461	95% KM USL	6.739

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.941	SD	2.029
95% UTL95% Coverage	6.986	95% UPL (t)	5.586
90% Percentile (z)	4.542	95% Percentile (z)	5.279
99% Percentile (z)	6.662	95% USL	6.963

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.331	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.258	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	31.56	k star (bias corrected MLE)	8.056
Theta hat (MLE)	0.17	Theta star (bias corrected MLE)	0.667
nu hat (MLE)	252.5	nu star (bias corrected)	64.45
MLE Mean (bias corrected)	5.375		
MLE Sd (bias corrected)	1.894	95% Percentile of Chisquare (2kstar)	26.44

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	2.055
Maximum	6.8	Median	1.011

SD	2	CV	0.973
k hat (MLE)	1.056	k star (bias corrected MLE)	0.909
Theta hat (MLE)	1.945	Theta star (bias corrected MLE)	2.26
nu hat (MLE)	35.92	nu star (bias corrected)	30.91
MLE Mean (bias corrected)	2.055	MLE Sd (bias corrected)	2.155
95% Percentile of Chisquare (2kstar)	5.634	90% Percentile	4.844
95% Percentile	6.368	99% Percentile	9.931

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	9.974	11.62	95% Approx. Gamma UPL	6.588	7.207
95% Gamma USL	9.911	11.53			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.106	SD (KM)	1.872
Variance (KM)	3.504	SE of Mean (KM)	0.524
k hat (KM)	1.266	k star (KM)	1.081
nu hat (KM)	43.03	nu star (KM)	36.77
theta hat (KM)	1.664	theta star (KM)	1.947
80% gamma percentile (KM)	3.367	90% gamma percentile (KM)	4.756
95% gamma percentile (KM)	6.137	99% gamma percentile (KM)	9.325

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.56	7.734	95% Approx. Gamma UPL	5.37	5.358
95% KM Gamma Percentile	4.953	4.919	95% Gamma USL	7.52	7.69

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2.946	Mean in Log Scale	0.989
SD in Original Scale	1.488	SD in Log Scale	0.412
95% UTL95% Coverage	7.479	95% BCA UTL95% Coverage	6.8
95% Bootstrap (%) UTL95% Coverage	6.8	95% UPL (t)	5.631
90% Percentile (z)	4.556	95% Percentile (z)	5.29
99% Percentile (z)	7.003	95% USL	7.445

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.465	95% KM UTL (Lognormal)95% Coverage	8.457

KM SD of Logged Data	0.672	95% KM UPL (Lognormal)	5.322
95% KM Percentile Lognormal (z)	4.806	95% KM USL (Lognormal)	8.394

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.941	Mean in Log Scale	0.278
SD in Original Scale	2.029	SD in Log Scale	0.826
95% UTL95% Coverage	10.28	95% UPL (t)	5.818
90% Percentile (z)	3.803	95% Percentile (z)	5.134
99% Percentile (z)	9.011	95% USL	10.19

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	6.8
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	6.8
95% USL	6.8	95% KM Chebyshev UPL	10.5

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	3	Number of Distinct Non-Detects	11
Minimum Detect	4.1	Minimum Non-Detect	1.1
Maximum Detect	6.8	Maximum Non-Detect	2.5
Variance Detected	1.223	Percent Non-Detects	76.47%
Mean Detected	5.375	SD Detected	1.106
Mean of Detected Logged Data	1.666	SD of Detected Logged Data	0.207

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level	

Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2.106	KM SD	1.872
95% UTL95% Coverage	6.759	95% KM UPL (t)	5.469
90% KM Percentile (z)	4.505	95% KM Percentile (z)	5.185
99% KM Percentile (z)	6.461	95% KM USL	6.739

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.941	SD	2.029
95% UTL95% Coverage	6.986	95% UPL (t)	5.586
90% Percentile (z)	4.542	95% Percentile (z)	5.279
99% Percentile (z)	6.662	95% USL	6.963

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.331	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.258	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	31.56	k star (bias corrected MLE)	8.056
Theta hat (MLE)	0.17	Theta star (bias corrected MLE)	0.667
nu hat (MLE)	252.5	nu star (bias corrected)	64.45
MLE Mean (bias corrected)	5.375		
MLE Sd (bias corrected)	1.894	95% Percentile of Chisquare (2kstar)	26.44

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	2.055
Maximum	6.8	Median	1.011
SD	2	CV	0.973
k hat (MLE)	1.056	k star (bias corrected MLE)	0.909
Theta hat (MLE)	1.945	Theta star (bias corrected MLE)	2.26
nu hat (MLE)	35.92	nu star (bias corrected)	30.91
MLE Mean (bias corrected)	2.055	MLE Sd (bias corrected)	2.155
95% Percentile of Chisquare (2kstar)	5.634	90% Percentile	4.844

95% Percentile	6.368	99% Percentile	9.931

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	9.974	11.62	95% Approx. Gamma UPL	6.588	7.207
95% Gamma USL	9.911	11.53			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.106	SD (KM)	1.872
Variance (KM)	3.504	SE of Mean (KM)	0.524
k hat (KM)	1.266	k star (KM)	1.081
nu hat (KM)	43.03	nu star (KM)	36.77
theta hat (KM)	1.664	theta star (KM)	1.947
80% gamma percentile (KM)	3.367	90% gamma percentile (KM)	4.756
95% gamma percentile (KM)	6.137	99% gamma percentile (KM)	9.325

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.56	7.734	95% Approx. Gamma UPL	5.37	5.358
95% KM Gamma Percentile	4.953	4.919	95% Gamma USL	7.52	7.69

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2.946	Mean in Log Scale	0.989
SD in Original Scale	1.488	SD in Log Scale	0.412
95% UTL95% Coverage	7.479	95% BCA UTL95% Coverage	6.8
95% Bootstrap (%) UTL95% Coverage	6.8	95% UPL (t)	5.631
90% Percentile (z)	4.556	95% Percentile (z)	5.29
99% Percentile (z)	7.003	95% USL	7.445

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.465	95% KM UTL (Lognormal)95% Coverage	8.457
KM SD of Logged Data	0.672	95% KM UPL (Lognormal)	5.322
95% KM Percentile Lognormal (z)	4.806	95% KM USL (Lognormal)	8.394

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.941	Mean in Log Scale	0.278
SD in Original Scale	2.029	SD in Log Scale	0.826

95% UTL95% Coverage	10.28	95% UPL (t)	5.818
90% Percentile (z)	3.803	95% Percentile (z)	5.134
99% Percentile (z)	9.011	95% USL	10.19

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	6.8
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	6.8
95% USL	6.8	95% KM Chebyshev UPL	10.5

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	13
Minimum	0.0092	First Quartile	0.015
Second Largest	0.062	Median	0.02
Maximum	0.072	Third Quartile	0.04
Mean	0.0297	SD	0.0207
Coefficient of Variation	0.698	Skewness	1.004
Mean of logged Data	-3.732	SD of logged Data	0.665

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.824	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.25	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0811	90% Percentile (z)	0.0562
	95% UPL (t)	0.0669	95% Percentile (z)	0.0637
	95% USL	0.0809	99% Percentile (z)	0.0778

Gamma GOF Test

A-D Test Statistic	0.763	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.205	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.488	k star (bias corrected MLE)	2.088
Theta hat (MLE)	0.0119	Theta star (bias corrected MLE)	0.0142
nu hat (MLE)	84.59	nu star (bias corrected)	70.99
MLE Mean (bias corrected)	0.0297	MLE Sd (bias corrected)	0.0205

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0722	90% Percentile	0.0571
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0735	95% Percentile	0.0694
95% WH Approx. Gamma UTL with 95% Coverage	0.0993	99% Percentile	0.0966
95% HW Approx. Gamma UTL with 95% Coverage	0.104		
95% WH USL	0.0988	95% HW USL	0.103

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.166	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.125	90% Percentile (z)	0.0561
95% UPL (t)	0.0791	95% Percentile (z)	0.0715
95% USL	0.124	99% Percentile (z)	0.112

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.072
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.072	95% BCA Bootstrap UTL with 95% Coverage	0.072
95% UPL	0.072	90% Percentile	0.0602
90% Chebyshev UPL	0.0936	95% Percentile	0.064
95% Chebyshev UPL	0.123	99% Percentile	0.0704
95% USL	0.072		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	12
Minimum	0.0069	First Quartile	0.0094
Second Largest	0.033	Median	0.012
Maximum	0.042	Third Quartile	0.016
Mean	0.0163	SD	0.0105
Coefficient of Variation	0.641	Skewness	1.476
Mean of logged Data	-4.268	SD of logged Data	0.539

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.767	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.294	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0424	90% Percentile (z)	0.0297
	95% UPL (t)	0.0351	95% Percentile (z)	0.0336
	95% USL	0.0422	99% Percentile (z)	0.0407

Gamma GOF Test

A-D Test Statistic	1.19	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.744	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.244	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.424	k star (bias corrected MLE)	2.859
Theta hat (MLE)	0.00477	Theta star (bias corrected MLE)	0.00571
nu hat (MLE)	116.4	nu star (bias corrected)	97.2
MLE Mean (bias corrected)	0.0163	MLE Sd (bias corrected)	0.00966

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0358	90% Percentile	0.0293
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.036	95% Percentile	0.0348
95% WH Approx. Gamma UTL with 95% Coverage	0.0475	99% Percentile	0.0467
95% HW Approx. Gamma UTL with 95% Coverage	0.0486		
95% WH USL	0.0473	95% HW USL	0.0484

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.881	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.207	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0535	90% Percentile (z)	0.028
95% UPL (t)	0.0369	95% Percentile (z)	0.034
95% USL	0.0532	99% Percentile (z)	0.0491

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.042
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.042	95% BCA Bootstrap UTL with 95% Coverage	0.042
95% UPL	0.042	90% Percentile	0.033
90% Chebyshev UPL	0.0486	95% Percentile	0.0348
95% Chebyshev UPL	0.0633	99% Percentile	0.0406
95% USL	0.042		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	13
Minimum	0.0092	First Quartile	0.015
Second Largest	0.062	Median	0.02

Maximum	0.072	Third Quartile	0.04
Mean	0.0297	SD	0.0207
Coefficient of Variation	0.698	Skewness	1.004
Mean of logged Data	-3.732	SD of logged Data	0.665

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.824	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.25	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0811	90% Percentile (z)	0.0562
	95% UPL (t)	0.0669	95% Percentile (z)	0.0637
	95% USL	0.0809	99% Percentile (z)	0.0778

Gamma GOF Test

A-D Test Statistic	0.763	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.205	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.488	k star (bias corrected MLE)	2.088
Theta hat (MLE)	0.0119	Theta star (bias corrected MLE)	0.0142
nu hat (MLE)	84.59	nu star (bias corrected)	70.99
MLE Mean (bias corrected)	0.0297	MLE Sd (bias corrected)	0.0205

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0722	90% Percentile	0.0571
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0735	95% Percentile	0.0694
95% WH Approx. Gamma UTL with	95% Coverage	0.0993	99% Percentile	0.0966
95% HW Approx. Gamma UTL with	95% Coverage	0.104		
	95% WH USL	0.0988	95% HW USL	0.103

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.166	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.125	90% Percentile (z)		0.0561
	95% UPL (t)	0.0791	95% Percentile (z)		0.0715
	95% USL	0.124	99% Percentile (z)		0.112

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	0.072
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.072	95% BCA Bootstrap UTL with	95% Coverage	0.072
	95% UPL	0.072		90% Percentile	0.0602
	90% Chebyshev UPL	0.0936		95% Percentile	0.064
	95% Chebyshev UPL	0.123		99% Percentile	0.0704
	95% USL	0.072			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	13
Minimum	0.0092	First Quartile	0.015
Second Largest	0.062	Median	0.02
Maximum	0.072	Third Quartile	0.04
Mean	0.0297	SD	0.0207
Coefficient of Variation	0.698	Skewness	1.004
Mean of logged Data	-3.732	SD of logged Data	0.665

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.824	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.25	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0811	90% Percentile (z)		0.0562
	95% UPL (t)	0.0669	95% Percentile (z)		0.0637
	95% USL	0.0809	99% Percentile (z)		0.0778

Gamma GOF Test

A-D Test Statistic	0.763	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.205	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.488	k star (bias corrected MLE)	2.088
Theta hat (MLE)	0.0119	Theta star (bias corrected MLE)	0.0142
nu hat (MLE)	84.59	nu star (bias corrected)	70.99
MLE Mean (bias corrected)	0.0297	MLE Sd (bias corrected)	0.0205

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0722	90% Percentile	0.0571
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0735	95% Percentile	0.0694
95% WH Approx. Gamma UTL with 95% Coverage	0.0993	99% Percentile	0.0966
95% HW Approx. Gamma UTL with 95% Coverage	0.104		
95% WH USL	0.0988	95% HW USL	0.103

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.166	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.125	90% Percentile (z)		0.0561
	95% UPL (t)	0.0791	95% Percentile (z)		0.0715
	95% USL	0.124	99% Percentile (z)		0.112

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with	95% Coverage	0.072
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582

			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.072	95% BCA Bootstrap UTL with	95% Coverage	0.072
	95% UPL	0.072		90% Percentile	0.0602
	90% Chebyshev UPL	0.0936		95% Percentile	0.064
	95% Chebyshev UPL	0.123		99% Percentile	0.0704
	95% USL	0.072			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0069	First Quartile	0.011
Second Largest	0.049	Median	0.015
Maximum	0.054	Third Quartile	0.03
Mean	0.0226	SD	0.0158
Coefficient of Variation	0.698	Skewness	0.996
Mean of logged Data	-4.005	SD of logged Data	0.666

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.827	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.25	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0618	90% Percentile (z)		0.0428
	95% UPL (t)	0.0509	95% Percentile (z)		0.0485
	95% USL	0.0616	99% Percentile (z)		0.0593

Gamma GOF Test

A-D Test Statistic	0.718	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.205	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.484	k star (bias corrected MLE)	2.085
Theta hat (MLE)	0.0091	Theta star (bias corrected MLE)	0.0108
nu hat (MLE)	84.45	nu star (bias corrected)	70.88
MLE Mean (bias corrected)	0.0226	MLE Sd (bias corrected)	0.0156

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.055	90% Percentile	0.0435
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.056	95% Percentile	0.0529
95% WH Approx. Gamma UTL with 95% Coverage	0.0757	99% Percentile	0.0736
95% HW Approx. Gamma UTL with 95% Coverage	0.0791		
95% WH USL	0.0753	95% HW USL	0.0787

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.927	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.166	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0955	90% Percentile (z)	0.0428
95% UPL (t)	0.0603	95% Percentile (z)	0.0545
95% USL	0.0948	99% Percentile (z)	0.0859

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.054
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.054	95% BCA Bootstrap UTL with 95% Coverage	0.054
95% UPL	0.054	90% Percentile	0.0466
90% Chebyshev UPL	0.0713	95% Percentile	0.05
95% Chebyshev UPL	0.0933	99% Percentile	0.0532
95% USL	0.054		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Table C3-8
ProUCL Output for Porewater BTVs and BTV HQs, Approach E
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 9/18/2023 8:46:48 AM
From File	porewater_utl_input_ph3_fb.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

concDL (alkalinity_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
Minimum	40	First Quartile	48.25
Second Largest	104	Median	54.5
Maximum	110	Third Quartile	71.25
Mean	64.5	SD	22.39
Coefficient of Variation	0.347	Skewness	1.015
Mean of logged Data	4.116	SD of logged Data	0.319

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.838	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.227	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	119.4	90% Percentile (z)	93.19
	95% UPL (t)	104.5	95% Percentile (z)	101.3
	95% USL	120.6	99% Percentile (z)	116.6

Gamma GOF Test

A-D Test Statistic	0.986	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.228	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10	k star (bias corrected MLE)	8.372

Theta hat (MLE)	6.449	Theta star (bias corrected MLE)	7.704
nu hat (MLE)	360.1	nu star (bias corrected)	301.4
MLE Mean (bias corrected)	64.5	MLE Sd (bias corrected)	22.29

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	106.7	90% Percentile	94.21
95% Hawkins Wixley (HW) Approx. Gamma UPL	107.1	95% Percentile	105
95% WH Approx. Gamma UTL with 95% Coverage	127.4	99% Percentile	127.3
95% HW Approx. Gamma UTL with 95% Coverage	128.9		
95% WH USL	129.1	95% HW USL	130.7

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.891	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.218	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	134.1	90% Percentile (z)	92.28
95% UPL (t)	108.4	95% Percentile (z)	103.6
95% USL	136.3	99% Percentile (z)	128.8

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	110
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	110	95% BCA Bootstrap UTL with 95% Coverage	110
95% UPL	110	90% Percentile	99.8
90% Chebyshev UPL	133.5	95% Percentile	104.9
95% Chebyshev UPL	164.8	99% Percentile	109
95% USL	110		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	12		
Number of Detects	5	Number of Non-Detects	13
Number of Distinct Detects	5	Number of Distinct Non-Detects	7
Minimum Detect	49.5	Minimum Non-Detect	0.8
Maximum Detect	133	Maximum Non-Detect	18.2
Variance Detected	1197	Percent Non-Detects	72.22%
Mean Detected	72.14	SD Detected	34.6
Mean of Detected Logged Data	4.207	SD of Detected Logged Data	0.397

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.711	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.36	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	20.62	KM SD	35.88
95% UTL95% Coverage	108.6	95% KM UPL (t)	84.74
90% KM Percentile (z)	66.59	95% KM Percentile (z)	79.63
99% KM Percentile (z)	104.1	95% KM USL	110.4

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	21.69	SD	36.41
95% UTL95% Coverage	111	95% UPL (t)	86.77
90% Percentile (z)	68.35	95% Percentile (z)	81.58
99% Percentile (z)	106.4	95% USL	112.9

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.715	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.68	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.329	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.358	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	7.117	k star (bias corrected MLE)	2.98
Theta hat (MLE)	10.14	Theta star (bias corrected MLE)	24.21
nu hat (MLE)	71.17	nu star (bias corrected)	29.8
MLE Mean (bias corrected)	72.14		

MLE Sd (bias corrected)	41.79	95% Percentile of Chisquare (2kstar)	12.53

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	20.59
Maximum	133	Median	0.01
SD	37	CV	1.797
k hat (MLE)	0.159	k star (bias corrected MLE)	0.169
Theta hat (MLE)	129.6	Theta star (bias corrected MLE)	121.6
nu hat (MLE)	5.717	nu star (bias corrected)	6.097
MLE Mean (bias corrected)	20.59	MLE Sd (bias corrected)	50.02
95% Percentile of Chisquare (2kstar)	1.817	90% Percentile	61.85
95% Percentile	110.5	99% Percentile	248.2

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	196.4	260.3	95% Approx. Gamma UPL	98.3	108.5
95% Gamma USL	205.9	276.4			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	20.62	SD (KM)	35.88
Variance (KM)	1287	SE of Mean (KM)	9.454
k hat (KM)	0.33	k star (KM)	0.312
nu hat (KM)	11.89	nu star (KM)	11.24
theta hat (KM)	62.43	theta star (KM)	66.03
80% gamma percentile (KM)	31.92	90% gamma percentile (KM)	60.5
95% gamma percentile (KM)	93.1	99% gamma percentile (KM)	177.4

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	153.2	173.4	95% Approx. Gamma UPL	84.55	86.07
95% KM Gamma Percentile	73.21	72.82	95% Gamma USL	159.6	182.1

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.786	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.304	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.319	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	31.43	Mean in Log Scale	3.107
SD in Original Scale	31.36	SD in Log Scale	0.806
95% UTL95% Coverage	161.6	95% BCA UTL95% Coverage	133
95% Bootstrap (%) UTL95% Coverage	133	95% UPL (t)	94.47
90% Percentile (z)	62.84	95% Percentile (z)	84.22
99% Percentile (z)	145.9	95% USL	168.3

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.007	95% KM UTL (Lognormal)95% Coverage	363.6
KM SD of Logged Data	1.993	95% KM UPL (Lognormal)	96.48
95% KM Percentile Lognormal (z)	72.64	95% KM USL (Lognormal)	402.5

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	21.69	Mean in Log Scale	1.164
SD in Original Scale	36.41	SD in Log Scale	2.215
95% UTL95% Coverage	732.5	95% UPL (t)	167.7
90% Percentile (z)	54.71	95% Percentile (z)	122.3
99% Percentile (z)	553.3	95% USL	820.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	133
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	133
95% USL	133	95% KM Chebyshev UPL	181.3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	12		
Number of Detects	5	Number of Non-Detects	13
Number of Distinct Detects	5	Number of Distinct Non-Detects	7
Minimum Detect	49.5	Minimum Non-Detect	0.8
Maximum Detect	133	Maximum Non-Detect	18.2

Variance Detected	1197	Percent Non-Detects	72.22%
Mean Detected	72.14	SD Detected	34.6
Mean of Detected Logged Data	4.207	SD of Detected Logged Data	0.397

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.711	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.36	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	20.62	KM SD	35.88
95% UTL95% Coverage	108.6	95% KM UPL (t)	84.74
90% KM Percentile (z)	66.59	95% KM Percentile (z)	79.63
99% KM Percentile (z)	104.1	95% KM USL	110.4

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	21.69	SD	36.41
95% UTL95% Coverage	111	95% UPL (t)	86.77
90% Percentile (z)	68.35	95% Percentile (z)	81.58
99% Percentile (z)	106.4	95% USL	112.9

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.715	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.68	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.329	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.358	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	7.117	k star (bias corrected MLE)	2.98
Theta hat (MLE)	10.14	Theta star (bias corrected MLE)	24.21
nu hat (MLE)	71.17	nu star (bias corrected)	29.8
MLE Mean (bias corrected)	72.14		
MLE Sd (bias corrected)	41.79	95% Percentile of Chisquare (2kstar)	12.53

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	20.59
Maximum	133	Median	0.01
SD	37	CV	1.797
k hat (MLE)	0.159	k star (bias corrected MLE)	0.169
Theta hat (MLE)	129.6	Theta star (bias corrected MLE)	121.6
nu hat (MLE)	5.717	nu star (bias corrected)	6.097
MLE Mean (bias corrected)	20.59	MLE Sd (bias corrected)	50.02
95% Percentile of Chisquare (2kstar)	1.817	90% Percentile	61.85
95% Percentile	110.5	99% Percentile	248.2

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	196.4	260.3	95% Approx. Gamma UPL	98.3	108.5
95% Gamma USL	205.9	276.4			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	20.62	SD (KM)	35.88
Variance (KM)	1287	SE of Mean (KM)	9.454
k hat (KM)	0.33	k star (KM)	0.312
nu hat (KM)	11.89	nu star (KM)	11.24
theta hat (KM)	62.43	theta star (KM)	66.03
80% gamma percentile (KM)	31.92	90% gamma percentile (KM)	60.5
95% gamma percentile (KM)	93.1	99% gamma percentile (KM)	177.4

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	153.2	173.4	95% Approx. Gamma UPL	84.55	86.07
95% KM Gamma Percentile	73.21	72.82	95% Gamma USL	159.6	182.1

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Shapiro Wilk Test Statistic	0.786	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level	
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10% Lilliefors Critical Value	0.319	Detected Data appear Lognormal at 10% Significance Level	

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Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	31.43	Mean in Log Scale	3.107
SD in Original Scale	31.36	SD in Log Scale	0.806
95% UTL95% Coverage	161.6	95% BCA UTL95% Coverage	133
95% Bootstrap (%) UTL95% Coverage	133	95% UPL (t)	94.47
90% Percentile (z)	62.84	95% Percentile (z)	84.22

99% Percentile (z)	145.9	95% USL	168.3

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.007	95% KM UTL (Lognormal)95% Coverage	363.6
KM SD of Logged Data	1.993	95% KM UPL (Lognormal)	96.48
95% KM Percentile Lognormal (z)	72.64	95% KM USL (Lognormal)	402.5

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	21.69	Mean in Log Scale	1.164
SD in Original Scale	36.41	SD in Log Scale	2.215
95% UTL95% Coverage	732.5	95% UPL (t)	167.7
90% Percentile (z)	54.71	95% Percentile (z)	122.3
99% Percentile (z)	553.3	95% USL	820.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

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Data appear to follow a Discernible Distribution

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Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	133
95% USL	133	95% KM Chebyshev UPL	181.3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	12		
Number of Detects	5	Number of Non-Detects	13
Number of Distinct Detects	5	Number of Distinct Non-Detects	7
Minimum Detect	49.5	Minimum Non-Detect	0.8
Maximum Detect	133	Maximum Non-Detect	18.2
Variance Detected	1197	Percent Non-Detects	72.22%
Mean Detected	72.14	SD Detected	34.6
Mean of Detected Logged Data	4.207	SD of Detected Logged Data	0.397

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.711	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.36	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	20.62	KM SD	35.88
95% UTL95% Coverage	108.6	95% KM UPL (t)	84.74
90% KM Percentile (z)	66.59	95% KM Percentile (z)	79.63
99% KM Percentile (z)	104.1	95% KM USL	110.4

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	21.69	SD	36.41
95% UTL95% Coverage	111	95% UPL (t)	86.77
90% Percentile (z)	68.35	95% Percentile (z)	81.58
99% Percentile (z)	106.4	95% USL	112.9

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.715	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.68	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.329	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.358	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	7.117	k star (bias corrected MLE)	2.98
Theta hat (MLE)	10.14	Theta star (bias corrected MLE)	24.21
nu hat (MLE)	71.17	nu star (bias corrected)	29.8
MLE Mean (bias corrected)	72.14		
MLE Sd (bias corrected)	41.79	95% Percentile of Chisquare (2kstar)	12.53

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	20.59
Maximum	133	Median	0.01
SD	37	CV	1.797
k hat (MLE)	0.159	k star (bias corrected MLE)	0.169

Theta hat (MLE)	129.6	Theta star (bias corrected MLE)	121.6
nu hat (MLE)	5.717	nu star (bias corrected)	6.097
MLE Mean (bias corrected)	20.59	MLE Sd (bias corrected)	50.02
95% Percentile of Chisquare (2kstar)	1.817	90% Percentile	61.85
95% Percentile	110.5	99% Percentile	248.2

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	196.4	260.3	95% Approx. Gamma UPL	98.3	108.5
95% Gamma USL	205.9	276.4			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	20.62	SD (KM)	35.88
Variance (KM)	1287	SE of Mean (KM)	9.454
k hat (KM)	0.33	k star (KM)	0.312
nu hat (KM)	11.89	nu star (KM)	11.24
theta hat (KM)	62.43	theta star (KM)	66.03
80% gamma percentile (KM)	31.92	90% gamma percentile (KM)	60.5
95% gamma percentile (KM)	93.1	99% gamma percentile (KM)	177.4

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	153.2	173.4	95% Approx. Gamma UPL	84.55	86.07
95% KM Gamma Percentile	73.21	72.82	95% Gamma USL	159.6	182.1

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.786	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.304	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.319	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	31.43	Mean in Log Scale	3.107
SD in Original Scale	31.36	SD in Log Scale	0.806
95% UTL95% Coverage	161.6	95% BCA UTL95% Coverage	133
95% Bootstrap (%) UTL95% Coverage	133	95% UPL (t)	94.47
90% Percentile (z)	62.84	95% Percentile (z)	84.22
99% Percentile (z)	145.9	95% USL	168.3

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.007	95% KM UTL (Lognormal)95% Coverage	363.6
KM SD of Logged Data	1.993	95% KM UPL (Lognormal)	96.48
95% KM Percentile Lognormal (z)	72.64	95% KM USL (Lognormal)	402.5

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	21.69	Mean in Log Scale	1.164
SD in Original Scale	36.41	SD in Log Scale	2.215
95% UTL95% Coverage	732.5	95% UPL (t)	167.7
90% Percentile (z)	54.71	95% Percentile (z)	122.3
99% Percentile (z)	553.3	95% USL	820.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	133
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	133
95% USL	133	95% KM Chebyshev UPL	181.3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0015	First Quartile	0.00315
Second Largest	0.22	Median	0.0064
Maximum	0.4	Third Quartile	0.125
Mean	0.0731	SD	0.111
Coefficient of Variation	1.52	Skewness	1.831
Mean of logged Data	-4.103	SD of logged Data	1.929

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.705	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.321	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.345	90% Percentile (z)		0.215
	95% UPL (t)	0.272	95% Percentile (z)		0.256
	95% USL	0.351	99% Percentile (z)		0.331

Gamma GOF Test

A-D Test Statistic	1.204	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.813	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.284	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.217	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.437	k star (bias corrected MLE)	0.401
Theta hat (MLE)	0.167	Theta star (bias corrected MLE)	0.182
nu hat (MLE)	15.72	nu star (bias corrected)	14.43
MLE Mean (bias corrected)	0.0731	MLE Sd (bias corrected)	0.115

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.311	90% Percentile	0.206
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.333	95% Percentile	0.303
95% WH Approx. Gamma UTL with 95% Coverage	0.54	99% Percentile	0.547
95% HW Approx. Gamma UTL with 95% Coverage	0.637		
95% WH USL	0.561	95% HW USL	0.666

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.88	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.238	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.878	90% Percentile (z)		0.196
	95% UPL (t)	0.52	95% Percentile (z)		0.395
	95% USL	2.072	99% Percentile (z)		1.471

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	0.4
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.4	95% BCA Bootstrap UTL with	95% Coverage	0.4

95% UPL	0.4	90% Percentile	0.213
90% Chebyshev UPL	0.415	95% Percentile	0.247
95% Chebyshev UPL	0.57	99% Percentile	0.369
95% USL	0.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	11
Minimum	2.0000E-4	First Quartile	2.0000E-4
Second Largest	0.016	Median	6.1000E-4
Maximum	0.032	Third Quartile	0.0101
Mean	0.00564	SD	0.00862
Coefficient of Variation	1.529	Skewness	1.974
Mean of logged Data	-6.648	SD of logged Data	1.927

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.695	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.279	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0268	90% Percentile (z)	0.0167
	95% UPL (t)	0.021	95% Percentile (z)	0.0198
	95% USL	0.0272	99% Percentile (z)	0.0257

Gamma GOF Test

A-D Test Statistic	1.346	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.813	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.255	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.217	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.441	k star (bias corrected MLE)	0.404
Theta hat (MLE)	0.0128	Theta star (bias corrected MLE)	0.0139
nu hat (MLE)	15.87	nu star (bias corrected)	14.56
MLE Mean (bias corrected)	0.00564	MLE Sd (bias corrected)	0.00887

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.024	90% Percentile	0.0159
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0258	95% Percentile	0.0233
95% WH Approx. Gamma UTL with 95% Coverage	0.0415	99% Percentile	0.042
95% HW Approx. Gamma UTL with 95% Coverage	0.0491		
95% WH USL	0.0431	95% HW USL	0.0514

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.824	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.223	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.146	90% Percentile (z)	0.0153
95% UPL (t)	0.0406	95% Percentile (z)	0.0308
95% USL	0.161	99% Percentile (z)	0.115

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.032
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.032	95% BCA Bootstrap UTL with 95% Coverage	0.032
95% UPL	0.032	90% Percentile	0.0146
90% Chebyshev UPL	0.0322	95% Percentile	0.0184
95% Chebyshev UPL	0.0443	99% Percentile	0.0293
95% USL	0.032		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_bmi_awqc)

Table C3-8
ProUCL Output for Porewater BTVs and BTV HQs, Approach E
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0015	First Quartile	0.00315
Second Largest	0.22	Median	0.0064
Maximum	0.4	Third Quartile	0.125
Mean	0.0731	SD	0.111
Coefficient of Variation	1.52	Skewness	1.831
Mean of logged Data	-4.103	SD of logged Data	1.929

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.705	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.321	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.345	90% Percentile (z)	0.215
	95% UPL (t)	0.272	95% Percentile (z)	0.256
	95% USL	0.351	99% Percentile (z)	0.331

Gamma GOF Test

A-D Test Statistic	1.204	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.813	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.284	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.217	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.437	k star (bias corrected MLE)	0.401
Theta hat (MLE)	0.167	Theta star (bias corrected MLE)	0.182
nu hat (MLE)	15.72	nu star (bias corrected)	14.43
MLE Mean (bias corrected)	0.0731	MLE Sd (bias corrected)	0.115

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.311	90% Percentile	0.206
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.333	95% Percentile	0.303
95% WH Approx. Gamma UTL with	95% Coverage	0.54	99% Percentile	0.547
95% HW Approx. Gamma UTL with	95% Coverage	0.637		
	95% WH USL	0.561	95% HW USL	0.666

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.88	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.238	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.878	90% Percentile (z)		0.196
	95% UPL (t)	0.52	95% Percentile (z)		0.395
	95% USL	2.072	99% Percentile (z)		1.471

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	0.4
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.4	95% BCA Bootstrap UTL with	95% Coverage	0.4
	95% UPL	0.4	90% Percentile		0.213
	90% Chebyshev UPL	0.415	95% Percentile		0.247
	95% Chebyshev UPL	0.57	99% Percentile		0.369
	95% USL	0.4			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0015	First Quartile	0.00315
Second Largest	0.22	Median	0.0064
Maximum	0.4	Third Quartile	0.125
Mean	0.0731	SD	0.111
Coefficient of Variation	1.52	Skewness	1.831
Mean of logged Data	-4.103	SD of logged Data	1.929

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.705	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.321	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.345	90% Percentile (z)	0.215
	95% UPL (t)	0.272	95% Percentile (z)	0.256
	95% USL	0.351	99% Percentile (z)	0.331

Gamma GOF Test

A-D Test Statistic	1.204	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.813	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.284	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.217	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.437	k star (bias corrected MLE)	0.401
Theta hat (MLE)	0.167	Theta star (bias corrected MLE)	0.182
nu hat (MLE)	15.72	nu star (bias corrected)	14.43
MLE Mean (bias corrected)	0.0731	MLE Sd (bias corrected)	0.115

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.311	90% Percentile	0.206
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.333	95% Percentile	0.303
95% WH Approx. Gamma UTL with 95% Coverage	0.54	99% Percentile	0.547
95% HW Approx. Gamma UTL with 95% Coverage	0.637		
95% WH USL	0.561	95% HW USL	0.666

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.88	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.238	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.878	90% Percentile (z)	0.196
	95% UPL (t)	0.52	95% Percentile (z)	0.395
	95% USL	2.072	99% Percentile (z)	1.471

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.4	95% BCA Bootstrap UTL with 95% Coverage	0.4
95% UPL	0.4	90% Percentile	0.213
90% Chebyshev UPL	0.415	95% Percentile	0.247
95% Chebyshev UPL	0.57	99% Percentile	0.369
95% USL	0.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	11
Minimum Detect	0.311	Minimum Non-Detect	0.076
Maximum Detect	0.663	Maximum Non-Detect	0.249
Variance Detected	0.0203	Percent Non-Detects	66.67%
Mean Detected	0.45	SD Detected	0.142
Mean of Detected Logged Data	-0.838	SD of Detected Logged Data	0.3

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.848	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.201	KM SD	0.192
95% UTL95% Coverage	0.671	95% KM UPL (t)	0.543
90% KM Percentile (z)	0.446	95% KM Percentile (z)	0.516
99% KM Percentile (z)	0.646	95% KM USL	0.681

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.217	SD	0.188
95% UTL95% Coverage	0.677	95% UPL (t)	0.552
90% Percentile (z)	0.457	95% Percentile (z)	0.525
99% Percentile (z)	0.653	95% USL	0.686

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.518	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.316	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.99	k star (bias corrected MLE)	6.605
Theta hat (MLE)	0.0346	Theta star (bias corrected MLE)	0.0681
nu hat (MLE)	155.8	nu star (bias corrected)	79.26
MLE Mean (bias corrected)	0.45		
MLE Sd (bias corrected)	0.175	95% Percentile of Chisquare (2kstar)	22.64

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.166
Maximum	0.663	Median	0.0176
SD	0.222	CV	1.339
k hat (MLE)	0.562	k star (bias corrected MLE)	0.505
Theta hat (MLE)	0.295	Theta star (bias corrected MLE)	0.328
nu hat (MLE)	20.21	nu star (bias corrected)	18.18
MLE Mean (bias corrected)	0.166	MLE Sd (bias corrected)	0.233
95% Percentile of Chisquare (2kstar)	3.866	90% Percentile	0.447
95% Percentile	0.634	99% Percentile	1.093

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.108	1.264	95% Approx. Gamma UPL	0.663	0.698
95% Gamma USL	1.149	1.318			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.201	SD (KM)	0.192

Variance (KM)	0.0367	SE of Mean (KM)	0.0495
k hat (KM)	1.097	k star (KM)	0.951
nu hat (KM)	39.48	nu star (KM)	34.23
theta hat (KM)	0.183	theta star (KM)	0.211
80% gamma percentile (KM)	0.324	90% gamma percentile (KM)	0.468
95% gamma percentile (KM)	0.612	99% gamma percentile (KM)	0.948

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.823	0.862	95% Approx. Gamma UPL	0.568	0.575
95% KM Gamma Percentile	0.521	0.524	95% Gamma USL	0.845	0.888

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.882	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.826	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.252	Mean in Log Scale	-1.535
SD in Original Scale	0.164	SD in Log Scale	0.539
95% UTL95% Coverage	0.807	95% BCA UTL95% Coverage	0.663
95% Bootstrap (%) UTL95% Coverage	0.663	95% UPL (t)	0.564
90% Percentile (z)	0.43	95% Percentile (z)	0.522
99% Percentile (z)	0.754	95% USL	0.83

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.997	95% KM UTL (Lognormal)95% Coverage	1.053
KM SD of Logged Data	0.835	95% KM UPL (Lognormal)	0.604
95% KM Percentile Lognormal (z)	0.536	95% KM USL (Lognormal)	1.099

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.217	Mean in Log Scale	-1.842
SD in Original Scale	0.188	SD in Log Scale	0.793
95% UTL95% Coverage	1.109	95% UPL (t)	0.654
90% Percentile (z)	0.438	95% Percentile (z)	0.584
99% Percentile (z)	1.003	95% USL	1.154

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.663
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.663
95% USL	0.663	95% KM Chebyshev UPL	1.059

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	11
Minimum Detect	0.311	Minimum Non-Detect	0.076
Maximum Detect	0.663	Maximum Non-Detect	0.249
Variance Detected	0.0203	Percent Non-Detects	66.67%
Mean Detected	0.45	SD Detected	0.142
Mean of Detected Logged Data	-0.838	SD of Detected Logged Data	0.3

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.848	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.201	KM SD	0.192
95% UTL95% Coverage	0.671	95% KM UPL (t)	0.543
90% KM Percentile (z)	0.446	95% KM Percentile (z)	0.516
99% KM Percentile (z)	0.646	95% KM USL	0.681

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.217	SD	0.188
95% UTL95% Coverage	0.677	95% UPL (t)	0.552
90% Percentile (z)	0.457	95% Percentile (z)	0.525
99% Percentile (z)	0.653	95% USL	0.686

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.518	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.316	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.99	k star (bias corrected MLE)	6.605
Theta hat (MLE)	0.0346	Theta star (bias corrected MLE)	0.0681
nu hat (MLE)	155.8	nu star (bias corrected)	79.26
MLE Mean (bias corrected)	0.45		
MLE Sd (bias corrected)	0.175	95% Percentile of Chisquare (2kstar)	22.64

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.166
Maximum	0.663	Median	0.0176
SD	0.222	CV	1.339
k hat (MLE)	0.562	k star (bias corrected MLE)	0.505
Theta hat (MLE)	0.295	Theta star (bias corrected MLE)	0.328
nu hat (MLE)	20.21	nu star (bias corrected)	18.18
MLE Mean (bias corrected)	0.166	MLE Sd (bias corrected)	0.233
95% Percentile of Chisquare (2kstar)	3.866	90% Percentile	0.447
95% Percentile	0.634	99% Percentile	1.093

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.108	1.264	95% Approx. Gamma UPL	0.663	0.698
95% Gamma USL	1.149	1.318			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.201	SD (KM)	0.192
Variance (KM)	0.0367	SE of Mean (KM)	0.0495
k hat (KM)	1.097	k star (KM)	0.951
nu hat (KM)	39.48	nu star (KM)	34.23
theta hat (KM)	0.183	theta star (KM)	0.211
80% gamma percentile (KM)	0.324	90% gamma percentile (KM)	0.468
95% gamma percentile (KM)	0.612	99% gamma percentile (KM)	0.948

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
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concDL (antimony_ug/l_concentration_fish_awqc)

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concDL (antimony_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.015	Median	0.006
Maximum	0.017	Third Quartile	0.0089
Mean	0.00724	SD	0.0038
Coefficient of Variation	0.525	Skewness	1.432
Mean of logged Data	-5.046	SD of logged Data	0.502

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.852	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0166	90% Percentile (z)	0.0121
95% UPL (t)	0.014	95% Percentile (z)	0.0135
95% USL	0.0168	99% Percentile (z)	0.0161

Gamma GOF Test

A-D Test Statistic	0.58	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.203	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.407	k star (bias corrected MLE)	3.71
Theta hat (MLE)	0.00164	Theta star (bias corrected MLE)	0.00195
nu hat (MLE)	158.7	nu star (bias corrected)	133.5
MLE Mean (bias corrected)	0.00724	MLE Sd (bias corrected)	0.00376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0147	90% Percentile	0.0123
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0149	95% Percentile	0.0143
95% WH Approx. Gamma UTL with 95% Coverage	0.0188	99% Percentile	0.0187
95% HW Approx. Gamma UTL with 95% Coverage	0.0194		
95% WH USL	0.0191	95% HW USL	0.0197

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.171	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0221	90% Percentile (z)	0.0122
	95% UPL (t)	0.0158	95% Percentile (z)	0.0147
	95% USL	0.0226	99% Percentile (z)	0.0207

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	0.017
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.017	95% BCA Bootstrap UTL with	95% Coverage	0.017
	95% UPL	0.017		90% Percentile	0.0115
	90% Chebyshev UPL	0.019		95% Percentile	0.0153
	95% Chebyshev UPL	0.0243		99% Percentile	0.0167
	95% USL	0.017			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	14
Minimum	3.5000E-5	First Quartile	9.1000E-5
Second Largest	2.7000E-4	Median	1.1000E-4
Maximum	3.0000E-4	Third Quartile	1.5500E-4
Mean	1.2828E-4	SD	6.7434E-5
Coefficient of Variation	0.526	Skewness	1.462
Mean of logged Data	-9.078	SD of logged Data	0.496

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.845	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.273	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.9369E-4	90% Percentile (z)	2.1470E-4
	95% UPL (t)	2.4880E-4	95% Percentile (z)	2.3920E-4
	95% USL	2.9713E-4	99% Percentile (z)	2.8515E-4

Gamma GOF Test

A-D Test Statistic	0.612	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.229	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.46	k star (bias corrected MLE)	3.754
Theta hat (MLE)	2.8763E-5	Theta star (bias corrected MLE)	3.4175E-5
nu hat (MLE)	160.6	nu star (bias corrected)	135.1
MLE Mean (bias corrected)	1.2828E-4	MLE Sd (bias corrected)	6.6211E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.5924E-4	90% Percentile	2.1704E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.6246E-4	95% Percentile	2.5292E-4
95% WH Approx. Gamma UTL with	95% Coverage	3.3148E-4	99% Percentile	3.2978E-4
95% HW Approx. Gamma UTL with	95% Coverage	3.4116E-4		
	95% WH USL	3.3751E-4	95% HW USL	3.4784E-4

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Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
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10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	3.8599E-4	90% Percentile (z)	2.1577E-4
	95% UPL (t)	2.7735E-4	95% Percentile (z)	2.5842E-4
	95% USL	3.9589E-4	99% Percentile (z)	3.6246E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	3.0000E-4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	3.0000E-4	95% BCA Bootstrap UTL with 95% Coverage	3.0000E-4
95% UPL	3.0000E-4	90% Percentile	2.0700E-4
90% Chebyshev UPL	3.3612E-4	95% Percentile	2.7450E-4
95% Chebyshev UPL	4.3027E-4	99% Percentile	2.9490E-4
95% USL	3.0000E-4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.015	Median	0.006
Maximum	0.017	Third Quartile	0.0089
Mean	0.00724	SD	0.0038
Coefficient of Variation	0.525	Skewness	1.432
Mean of logged Data	-5.046	SD of logged Data	0.502

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.852	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0166	90% Percentile (z)	0.0121
95% UPL (t)	0.014	95% Percentile (z)	0.0135
95% USL	0.0168	99% Percentile (z)	0.0161

Gamma GOF Test

A-D Test Statistic	0.58	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.203	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.407	k star (bias corrected MLE)	3.71
Theta hat (MLE)	0.00164	Theta star (bias corrected MLE)	0.00195
nu hat (MLE)	158.7	nu star (bias corrected)	133.5
MLE Mean (bias corrected)	0.00724	MLE Sd (bias corrected)	0.00376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0147	90% Percentile	0.0123
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0149	95% Percentile	0.0143
95% WH Approx. Gamma UTL with 95% Coverage	0.0188	99% Percentile	0.0187
95% HW Approx. Gamma UTL with 95% Coverage	0.0194		
95% WH USL	0.0191	95% HW USL	0.0197

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.171	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0221	90% Percentile (z)	0.0122
95% UPL (t)	0.0158	95% Percentile (z)	0.0147
95% USL	0.0226	99% Percentile (z)	0.0207

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.017
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.017	95% BCA Bootstrap UTL with 95% Coverage	0.017
95% UPL	0.017	90% Percentile	0.0115
90% Chebyshev UPL	0.019	95% Percentile	0.0153
95% Chebyshev UPL	0.0243	99% Percentile	0.0167
95% USL	0.017		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_bmi_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	14
Minimum	9.2000E-4	First Quartile	0.0024
Second Largest	0.0071	Median	0.0028
Maximum	0.008	Third Quartile	0.00415
Mean	0.0034	SD	0.00179
Coefficient of Variation	0.527	Skewness	1.457
Mean of logged Data	-5.801	SD of logged Data	0.498

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.847	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.255	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0078	90% Percentile (z)	0.0057
	95% UPL (t)	0.0066	95% Percentile (z)	0.00635
	95% USL	0.00789	99% Percentile (z)	0.00757

Gamma GOF Test

A-D Test Statistic	0.592	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.206	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.433	k star (bias corrected MLE)	3.731
Theta hat (MLE)	7.6723E-4	Theta star (bias corrected MLE)	9.1154E-4
nu hat (MLE)	159.6	nu star (bias corrected)	134.3
MLE Mean (bias corrected)	0.0034	MLE Sd (bias corrected)	0.00176

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00689	90% Percentile	0.00576
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.00697	95% Percentile	0.00672
95% WH Approx. Gamma UTL with 95% Coverage	0.00881	99% Percentile	0.00876
95% HW Approx. Gamma UTL with 95% Coverage	0.00907		
95% WH USL	0.00897	95% HW USL	0.00925

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.945	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0103	90% Percentile (z)	0.00573
95% UPL (t)	0.00737	95% Percentile (z)	0.00687
95% USL	0.0105	99% Percentile (z)	0.00965

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.008
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.008	95% BCA Bootstrap UTL with 95% Coverage	0.008
95% UPL	0.008	90% Percentile	0.00542
90% Chebyshev UPL	0.00892	95% Percentile	0.00724
95% Chebyshev UPL	0.0114	99% Percentile	0.00785
95% USL	0.008		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0019	First Quartile	0.00513
Second Largest	0.015	Median	0.006
Maximum	0.017	Third Quartile	0.0089
Mean	0.00724	SD	0.0038

Coefficient of Variation	0.525	Skewness	1.432
Mean of logged Data	-5.046	SD of logged Data	0.502

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.852	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0166	90% Percentile (z)	0.0121
	95% UPL (t)	0.014	95% Percentile (z)	0.0135
	95% USL	0.0168	99% Percentile (z)	0.0161

Gamma GOF Test

A-D Test Statistic	0.58	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.203	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.407	k star (bias corrected MLE)	3.71
Theta hat (MLE)	0.00164	Theta star (bias corrected MLE)	0.00195
nu hat (MLE)	158.7	nu star (bias corrected)	133.5
MLE Mean (bias corrected)	0.00724	MLE Sd (bias corrected)	0.00376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0147	90% Percentile	0.0123
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0149	95% Percentile	0.0143
95% WH Approx. Gamma UTL with	95% Coverage	0.0188	99% Percentile	0.0187
95% HW Approx. Gamma UTL with	95% Coverage	0.0194		
	95% WH USL	0.0191	95% HW USL	0.0197

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.171	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0221	90% Percentile (z)		0.0122
	95% UPL (t)	0.0158	95% Percentile (z)		0.0147
	95% USL	0.0226	99% Percentile (z)		0.0207

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	0.017
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.017	95% BCA Bootstrap UTL with	95% Coverage	0.017
	95% UPL	0.017		90% Percentile	0.0115
	90% Chebyshev UPL	0.019		95% Percentile	0.0153
	95% Chebyshev UPL	0.0243		99% Percentile	0.0167
	95% USL	0.017			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	2.7000E-5	First Quartile	7.1250E-5
Second Largest	2.1000E-4	Median	8.4000E-5
Maximum	2.4000E-4	Third Quartile	1.2500E-4
Mean	1.0144E-4	SD	5.3711E-5
Coefficient of Variation	0.529	Skewness	1.441
Mean of logged Data	-9.315	SD of logged Data	0.503

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.851	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.258	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.3320E-4	90% Percentile (z)	1.7028E-4
	95% UPL (t)	1.9744E-4	95% Percentile (z)	1.8979E-4
	95% USL	2.3594E-4	99% Percentile (z)	2.2639E-4

Gamma GOF Test

A-D Test Statistic	0.585	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.209	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.367	k star (bias corrected MLE)	3.676
Theta hat (MLE)	2.3229E-5	Theta star (bias corrected MLE)	2.7594E-5
nu hat (MLE)	157.2	nu star (bias corrected)	132.3
MLE Mean (bias corrected)	1.0144E-4	MLE Sd (bias corrected)	5.2908E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.0625E-4	90% Percentile	1.7238E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.0894E-4	95% Percentile	2.0114E-4
95% WH Approx. Gamma UTL with	95% Coverage	2.6425E-4	99% Percentile	2.6283E-4
95% HW Approx. Gamma UTL with	95% Coverage	2.7224E-4		
	95% WH USL	2.6910E-4	95% HW USL	2.7762E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.947	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.176	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	3.0947E-4	90% Percentile (z)	1.7165E-4
	95% UPL (t)	2.2139E-4	95% Percentile (z)	2.0608E-4
	95% USL	3.1752E-4	99% Percentile (z)	2.9036E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	2.4000E-4
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	2.4000E-4	95% BCA Bootstrap UTL with	95% Coverage	2.4000E-4

95% UPL	2.4000E-4	90% Percentile	1.6100E-4
90% Chebyshev UPL	2.6699E-4	95% Percentile	2.1450E-4
95% Chebyshev UPL	3.4198E-4	99% Percentile	2.3490E-4
95% USL	2.4000E-4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	15	Number of Non-Detects	3
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.244	Maximum Non-Detect	0.008
Variance Detected	0.00417	Percent Non-Detects	16.67%
Mean Detected	0.0435	SD Detected	0.0646
Mean of Detected Logged Data	-3.675	SD of Detected Logged Data	0.913

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.835	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.413	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.255	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0376	KM SD	0.0585
95% UTL95% Coverage	0.181	95% KM UPL (t)	0.142
90% KM Percentile (z)	0.112	95% KM Percentile (z)	0.134
99% KM Percentile (z)	0.174	95% KM USL	0.184

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0369	SD	0.0605
95% UTL95% Coverage	0.185	95% UPL (t)	0.145
90% Percentile (z)	0.114	95% Percentile (z)	0.136
99% Percentile (z)	0.178	95% USL	0.188

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.841	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.31	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.228	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.063	k star (bias corrected MLE)	0.895
Theta hat (MLE)	0.0409	Theta star (bias corrected MLE)	0.0486
nu hat (MLE)	31.88	nu star (bias corrected)	26.84
MLE Mean (bias corrected)	0.0435		
MLE Sd (bias corrected)	0.046	95% Percentile of Chisquare (2kstar)	5.576

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.009	Mean	0.0379
Maximum	0.244	Median	0.0195
SD	0.06	CV	1.583
k hat (MLE)	1.032	k star (bias corrected MLE)	0.897
Theta hat (MLE)	0.0367	Theta star (bias corrected MLE)	0.0422
nu hat (MLE)	37.17	nu star (bias corrected)	32.31
MLE Mean (bias corrected)	0.0379	MLE Sd (bias corrected)	0.04
95% Percentile of Chisquare (2kstar)	5.587	90% Percentile	0.0896
95% Percentile	0.118	99% Percentile	0.184

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.18	0.182	95% Approx. Gamma UPL	0.118	0.115
95% Gamma USL	0.185	0.188			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0376	SD (KM)	0.0585
Variance (KM)	0.00342	SE of Mean (KM)	0.0143
k hat (KM)	0.413	k star (KM)	0.381
nu hat (KM)	14.86	nu star (KM)	13.71
theta hat (KM)	0.091	theta star (KM)	0.0986
80% gamma percentile (KM)	0.0602	90% gamma percentile (KM)	0.107
95% gamma percentile (KM)	0.159	99% gamma percentile (KM)	0.289

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.175	0.177	95% Approx. Gamma UPL	0.115	0.112
95% KM Gamma Percentile	0.104	0.101	95% Gamma USL	0.18	0.183

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.901	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.217	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.202	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0368	Mean in Log Scale	-4.014
SD in Original Scale	0.0606	SD in Log Scale	1.144
95% UTL95% Coverage	0.299	95% BCA UTL95% Coverage	0.244
95% Bootstrap (%) UTL95% Coverage	0.244	95% UPL (t)	0.14
90% Percentile (z)	0.0782	95% Percentile (z)	0.119
99% Percentile (z)	0.258	95% USL	0.317

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.867	95% KM UTL (Lognormal)95% Coverage	0.196
KM SD of Logged Data	0.913	95% KM UPL (Lognormal)	0.107
95% KM Percentile Lognormal (z)	0.0938	95% KM USL (Lognormal)	0.206

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0369	Mean in Log Scale	-3.983
SD in Original Scale	0.0605	SD in Log Scale	1.09
95% UTL95% Coverage	0.27	95% UPL (t)	0.131
90% Percentile (z)	0.0753	95% Percentile (z)	0.112
99% Percentile (z)	0.235	95% USL	0.285

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.244
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.244
95% USL	0.244	95% KM Chebyshev UPL	0.299

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	15	Number of Non-Detects	3
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.244	Maximum Non-Detect	0.008
Variance Detected	0.00417	Percent Non-Detects	16.67%
Mean Detected	0.0435	SD Detected	0.0646
Mean of Detected Logged Data	-3.675	SD of Detected Logged Data	0.913

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.835	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.413	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.255	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0376	KM SD	0.0585
95% UTL95% Coverage	0.181	95% KM UPL (t)	0.142
90% KM Percentile (z)	0.112	95% KM Percentile (z)	0.134
99% KM Percentile (z)	0.174	95% KM USL	0.184

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0369	SD	0.0605
95% UTL95% Coverage	0.185	95% UPL (t)	0.145
90% Percentile (z)	0.114	95% Percentile (z)	0.136
99% Percentile (z)	0.178	95% USL	0.188

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.841	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.31	**Kolmogorov-Smirnov GOF**

5% K-S Critical Value	0.228	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.063	k star (bias corrected MLE)	0.895
Theta hat (MLE)	0.0409	Theta star (bias corrected MLE)	0.0486
nu hat (MLE)	31.88	nu star (bias corrected)	26.84
MLE Mean (bias corrected)	0.0435		
MLE Sd (bias corrected)	0.046	95% Percentile of Chisquare (2kstar)	5.576

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.009	Mean	0.0379
Maximum	0.244	Median	0.0195
SD	0.06	CV	1.583
k hat (MLE)	1.032	k star (bias corrected MLE)	0.897
Theta hat (MLE)	0.0367	Theta star (bias corrected MLE)	0.0422
nu hat (MLE)	37.17	nu star (bias corrected)	32.31
MLE Mean (bias corrected)	0.0379	MLE Sd (bias corrected)	0.04
95% Percentile of Chisquare (2kstar)	5.587	90% Percentile	0.0896
95% Percentile	0.118	99% Percentile	0.184

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.18	0.182	95% Approx. Gamma UPL	0.118	0.115
95% Gamma USL	0.185	0.188			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0376	SD (KM)	0.0585
Variance (KM)	0.00342	SE of Mean (KM)	0.0143
k hat (KM)	0.413	k star (KM)	0.381
nu hat (KM)	14.86	nu star (KM)	13.71
theta hat (KM)	0.091	theta star (KM)	0.0986
80% gamma percentile (KM)	0.0602	90% gamma percentile (KM)	0.107
95% gamma percentile (KM)	0.159	99% gamma percentile (KM)	0.289

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.175	0.177	95% Approx. Gamma UPL	0.115	0.112
95% KM Gamma Percentile	0.104	0.101	95% Gamma USL	0.18	0.183

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.901	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.217	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.202	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0368	Mean in Log Scale	-4.014
SD in Original Scale	0.0606	SD in Log Scale	1.144
95% UTL95% Coverage	0.299	95% BCA UTL95% Coverage	0.244
95% Bootstrap (%) UTL95% Coverage	0.244	95% UPL (t)	0.14
90% Percentile (z)	0.0782	95% Percentile (z)	0.119
99% Percentile (z)	0.258	95% USL	0.317

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.867	95% KM UTL (Lognormal)95% Coverage	0.196
KM SD of Logged Data	0.913	95% KM UPL (Lognormal)	0.107
95% KM Percentile Lognormal (z)	0.0938	95% KM USL (Lognormal)	0.206

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0369	Mean in Log Scale	-3.983
SD in Original Scale	0.0605	SD in Log Scale	1.09
95% UTL95% Coverage	0.27	95% UPL (t)	0.131
90% Percentile (z)	0.0753	95% Percentile (z)	0.112
99% Percentile (z)	0.235	95% USL	0.285

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.244
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.244
95% USL	0.244	95% KM Chebyshev UPL	0.299

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	15	Number of Non-Detects	3
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.244	Maximum Non-Detect	0.008
Variance Detected	0.00417	Percent Non-Detects	16.67%
Mean Detected	0.0435	SD Detected	0.0646
Mean of Detected Logged Data	-3.675	SD of Detected Logged Data	0.913

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.835	Data Not Normal at 1% Significance Level
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1% Lilliefors Critical Value	0.255	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0376	KM SD	0.0585
95% UTL95% Coverage	0.181	95% KM UPL (t)	0.142
90% KM Percentile (z)	0.112	95% KM Percentile (z)	0.134
99% KM Percentile (z)	0.174	95% KM USL	0.184

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0369	SD	0.0605
95% UTL95% Coverage	0.185	95% UPL (t)	0.145
90% Percentile (z)	0.114	95% Percentile (z)	0.136
99% Percentile (z)	0.178	95% USL	0.188

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Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.841	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.31	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.228	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.063	k star (bias corrected MLE)	0.895
Theta hat (MLE)	0.0409	Theta star (bias corrected MLE)	0.0486

nu hat (MLE)	31.88	nu star (bias corrected)	26.84
MLE Mean (bias corrected)	0.0435		
MLE Sd (bias corrected)	0.046	95% Percentile of Chisquare (2kstar)	5.576

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

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This is especially true when the sample size is small.

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Maximum	0.244	Median	0.0195
SD	0.06	CV	1.583
k hat (MLE)	1.032	k star (bias corrected MLE)	0.897
Theta hat (MLE)	0.0367	Theta star (bias corrected MLE)	0.0422
nu hat (MLE)	37.17	nu star (bias corrected)	32.31
MLE Mean (bias corrected)	0.0379	MLE Sd (bias corrected)	0.04
95% Percentile of Chisquare (2kstar)	5.587	90% Percentile	0.0896
95% Percentile	0.118	99% Percentile	0.184

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.18	0.182	95% Approx. Gamma UPL	0.118	0.115
95% Gamma USL	0.185	0.188			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0376	SD (KM)	0.0585
Variance (KM)	0.00342	SE of Mean (KM)	0.0143
k hat (KM)	0.413	k star (KM)	0.381
nu hat (KM)	14.86	nu star (KM)	13.71
theta hat (KM)	0.091	theta star (KM)	0.0986
80% gamma percentile (KM)	0.0602	90% gamma percentile (KM)	0.107
95% gamma percentile (KM)	0.159	99% gamma percentile (KM)	0.289

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.175	0.177	95% Approx. Gamma UPL	0.115	0.112
95% KM Gamma Percentile	0.104	0.101	95% Gamma USL	0.18	0.183

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.901	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.217	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.202	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0368	Mean in Log Scale	-4.014
SD in Original Scale	0.0606	SD in Log Scale	1.144
95% UTL95% Coverage	0.299	95% BCA UTL95% Coverage	0.244
95% Bootstrap (%) UTL95% Coverage	0.244	95% UPL (t)	0.14
90% Percentile (z)	0.0782	95% Percentile (z)	0.119
99% Percentile (z)	0.258	95% USL	0.317

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.867	95% KM UTL (Lognormal)95% Coverage	0.196
KM SD of Logged Data	0.913	95% KM UPL (Lognormal)	0.107
95% KM Percentile Lognormal (z)	0.0938	95% KM USL (Lognormal)	0.206

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0369	Mean in Log Scale	-3.983
SD in Original Scale	0.0605	SD in Log Scale	1.09
95% UTL95% Coverage	0.27	95% UPL (t)	0.131
90% Percentile (z)	0.0753	95% Percentile (z)	0.112
99% Percentile (z)	0.235	95% USL	0.285

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	0.244
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.244
95% USL	0.244	95% KM Chebyshev UPL	0.299

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	0.009	First Quartile	0.0175
Second Largest	0.21	Median	0.0335
Maximum	0.44	Third Quartile	0.0498

Mean	0.0659	SD	0.104
Coefficient of Variation	1.579	Skewness	3.19
Mean of logged Data	-3.322	SD of logged Data	1.001

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.335	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.321	90% Percentile (z)	0.199
	95% UPL (t)	0.252	95% Percentile (z)	0.237
	95% USL	0.326	99% Percentile (z)	0.308

Gamma GOF Test

A-D Test Statistic	1.225	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.235	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.963	k star (bias corrected MLE)	0.84
Theta hat (MLE)	0.0684	Theta star (bias corrected MLE)	0.0785
nu hat (MLE)	34.67	nu star (bias corrected)	30.23
MLE Mean (bias corrected)	0.0659	MLE Sd (bias corrected)	0.0719

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.212	90% Percentile	0.158
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.21	95% Percentile	0.21
95% WH Approx. Gamma UTL with	95% Coverage	0.325	99% Percentile	0.332
95% HW Approx. Gamma UTL with	95% Coverage	0.336		
	95% WH USL	0.335	95% HW USL	0.348

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.143	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.42	90% Percentile (z)	0.13
	95% UPL (t)	0.216	95% Percentile (z)	0.187
	95% USL	0.443	99% Percentile (z)	0.37

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.44
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.44	95% BCA Bootstrap UTL with 95% Coverage	0.44
95% UPL	0.44	90% Percentile	0.119
90% Chebyshev UPL	0.387	95% Percentile	0.245
95% Chebyshev UPL	0.532	99% Percentile	0.401
95% USL	0.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	14
Minimum	1.4000E-4	First Quartile	1.8500E-4
Second Largest	0.0026	Median	3.5000E-4
Maximum	0.0044	Third Quartile	4.6750E-4
Mean	6.7389E-4	SD	0.00108
Coefficient of Variation	1.608	Skewness	3.004
Mean of logged Data	-7.892	SD of logged Data	0.944

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.508	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.401	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.00333	90% Percentile (z)	0.00206
	95% UPL (t)	0.00261	95% Percentile (z)	0.00246
	95% USL	0.00339	99% Percentile (z)	0.0032

Gamma GOF Test

A-D Test Statistic	1.952	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.274	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.981	k star (bias corrected MLE)	0.854
Theta hat (MLE)	6.8724E-4	Theta star (bias corrected MLE)	7.8893E-4
nu hat (MLE)	35.3	nu star (bias corrected)	30.75
MLE Mean (bias corrected)	6.7389E-4	MLE Sd (bias corrected)	7.2914E-4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00214	90% Percentile	0.00161
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.00209	95% Percentile	0.00214
95% WH Approx. Gamma UTL with 95% Coverage	0.00328	99% Percentile	0.00336
95% HW Approx. Gamma UTL with 95% Coverage	0.00333		
95% WH USL	0.00338	95% HW USL	0.00345

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.843	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.00378	90% Percentile (z)	0.00125
	95% UPL (t)	0.00202	95% Percentile (z)	0.00176
	95% USL	0.00397	99% Percentile (z)	0.00336

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with	95% Coverage	0.0044
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
		Approximate Sample Size needed to achieve specified CC		59

95% Percentile Bootstrap UTL with	95% Coverage	0.0044	95% BCA Bootstrap UTL with	95% Coverage	0.0044
	95% UPL	0.0044		90% Percentile	0.00123
	90% Chebyshev UPL	0.00401		95% Percentile	0.00287
	95% Chebyshev UPL	0.00553		99% Percentile	0.00409
	95% USL	0.0044			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	0.009	First Quartile	0.0175
Second Largest	0.21	Median	0.0335
Maximum	0.44	Third Quartile	0.0498
Mean	0.0659	SD	0.104
Coefficient of Variation	1.579	Skewness	3.19
Mean of logged Data	-3.322	SD of logged Data	1.001

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.335	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.321		90% Percentile (z)	0.199
	95% UPL (t)	0.252		95% Percentile (z)	0.237
	95% USL	0.326		99% Percentile (z)	0.308

Gamma GOF Test

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5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level	
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5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.963	k star (bias corrected MLE)	0.84
Theta hat (MLE)	0.0684	Theta star (bias corrected MLE)	0.0785
nu hat (MLE)	34.67	nu star (bias corrected)	30.23
MLE Mean (bias corrected)	0.0659	MLE Sd (bias corrected)	0.0719

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.212	90% Percentile	0.158
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.21	95% Percentile	0.21
95% WH Approx. Gamma UTL with 95% Coverage	0.325	99% Percentile	0.332
95% HW Approx. Gamma UTL with 95% Coverage	0.336		
95% WH USL	0.335	95% HW USL	0.348

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.143	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.42	90% Percentile (z)	0.13
95% UPL (t)	0.216	95% Percentile (z)	0.187
95% USL	0.443	99% Percentile (z)	0.37

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.44
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.44	95% BCA Bootstrap UTL with 95% Coverage	0.44
95% UPL	0.44	90% Percentile	0.119
90% Chebyshev UPL	0.387	95% Percentile	0.245
95% Chebyshev UPL	0.532	99% Percentile	0.401
95% USL	0.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	0.009	First Quartile	0.0175
Second Largest	0.21	Median	0.0335
Maximum	0.44	Third Quartile	0.0498
Mean	0.0659	SD	0.104
Coefficient of Variation	1.579	Skewness	3.19
Mean of logged Data	-3.322	SD of logged Data	1.001

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.537	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.335	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.321	90% Percentile (z)	0.199
95% UPL (t)	0.252	95% Percentile (z)	0.237
95% USL	0.326	99% Percentile (z)	0.308

Gamma GOF Test

A-D Test Statistic	1.225	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.235	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.963	k star (bias corrected MLE)	0.84
Theta hat (MLE)	0.0684	Theta star (bias corrected MLE)	0.0785
nu hat (MLE)	34.67	nu star (bias corrected)	30.23
MLE Mean (bias corrected)	0.0659	MLE Sd (bias corrected)	0.0719

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.212	90% Percentile	0.158
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.21	95% Percentile	0.21
95% WH Approx. Gamma UTL with 95% Coverage	0.325	99% Percentile	0.332
95% HW Approx. Gamma UTL with 95% Coverage	0.336		
95% WH USL	0.335	95% HW USL	0.348

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.143	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.42	90% Percentile (z)	0.13
	95% UPL (t)	0.216	95% Percentile (z)	0.187
	95% USL	0.443	99% Percentile (z)	0.37

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	0.44
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.44	95% BCA Bootstrap UTL with 95% Coverage	0.44
	95% UPL	0.44	90% Percentile	0.119
	90% Chebyshev UPL	0.387	95% Percentile	0.245
	95% Chebyshev UPL	0.532	99% Percentile	0.401
	95% USL	0.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	0.0012	First Quartile	0.00243
Second Largest	0.028	Median	0.00455
Maximum	0.06	Third Quartile	0.00698
Mean	0.00903	SD	0.0141
Coefficient of Variation	1.564	Skewness	3.208
Mean of logged Data	-5.301	SD of logged Data	0.999

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.54	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.333	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0437	90% Percentile (z)	0.0271
	95% UPL (t)	0.0343	95% Percentile (z)	0.0323
	95% USL	0.0444	99% Percentile (z)	0.0419

Gamma GOF Test

A-D Test Statistic	1.163	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.768	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.23	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.975	k star (bias corrected MLE)	0.849
Theta hat (MLE)	0.00926	Theta star (bias corrected MLE)	0.0106
nu hat (MLE)	35.1	nu star (bias corrected)	30.58
MLE Mean (bias corrected)	0.00903	MLE Sd (bias corrected)	0.0098

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0289	90% Percentile	0.0216
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0287	95% Percentile	0.0287
95% WH Approx. Gamma UTL with	95% Coverage	0.0444	99% Percentile	0.0452
95% HW Approx. Gamma UTL with	95% Coverage	0.0459		
	95% WH USL	0.0457	95% HW USL	0.0475

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.139	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0578	90% Percentile (z)	0.0179
	95% UPL (t)	0.0297	95% Percentile (z)	0.0258
	95% USL	0.0608	99% Percentile (z)	0.0509

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.06
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.06	95% BCA Bootstrap UTL with 95% Coverage	0.06
95% UPL	0.06	90% Percentile	0.0161
90% Chebyshev UPL	0.0526	95% Percentile	0.0328
95% Chebyshev UPL	0.0723	99% Percentile	0.0546
95% USL	0.06		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (calcium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	13700	First Quartile	17875
Second Largest	33700	Median	20850
Maximum	40700	Third Quartile	29000
Mean	23783	SD	7625
Coefficient of Variation	0.321	Skewness	0.643
Mean of logged Data	10.03	SD of logged Data	0.313

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.915	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.2	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	42487	90% Percentile (z)	33555
95% UPL (t)	37411	95% Percentile (z)	36325
95% USL	42876	99% Percentile (z)	41521

Gamma GOF Test

A-D Test Statistic	0.619	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.199	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.81	k star (bias corrected MLE)	9.049
Theta hat (MLE)	2199	Theta star (bias corrected MLE)	2628
nu hat (MLE)	389.3	nu star (bias corrected)	325.8
MLE Mean (bias corrected)	23783	MLE Sd (bias corrected)	7906

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	38697	90% Percentile	34310
95% Hawkins Wixley (HW) Approx. Gamma UPL	38924	95% Percentile	38103
95% WH Approx. Gamma UTL with 95% Coverage	45969	99% Percentile	45918
95% HW Approx. Gamma UTL with 95% Coverage	46605		
95% WH USL	46562	95% HW USL	47237

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.94	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.187	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	48947	90% Percentile (z)	33908
95% UPL (t)	39730	95% Percentile (z)	37996
95% USL	49736	99% Percentile (z)	47042

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	40700
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	40700	95% BCA Bootstrap UTL with 95% Coverage	40700
95% UPL	40700	90% Percentile	32790
90% Chebyshev UPL	47284	95% Percentile	34750
95% Chebyshev UPL	57929	99% Percentile	39510
95% USL	40700		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (chloride_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
Minimum	0.16	First Quartile	0.328
Second Largest	4.58	Median	0.635
Maximum	5.4	Third Quartile	1.363
Mean	1.321	SD	1.616
Coefficient of Variation	1.223	Skewness	1.741
Mean of logged Data	-0.303	SD of logged Data	1.069

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.291	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.285	90% Percentile (z)	3.392
	95% UPL (t)	4.209	95% Percentile (z)	3.979
	95% USL	5.367	99% Percentile (z)	5.08

Gamma GOF Test

A-D Test Statistic	0.993	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.221	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.209	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.994	k star (bias corrected MLE)	0.865
Theta hat (MLE)	1.329	Theta star (bias corrected MLE)	1.527
nu hat (MLE)	35.78	nu star (bias corrected)	31.15
MLE Mean (bias corrected)	1.321	MLE Sd (bias corrected)	1.42

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4.334	90% Percentile	3.152
95% Hawkins Wixley (HW) Approx. Gamma UPL	4.423	95% Percentile	4.167
95% WH Approx. Gamma UTL with 95% Coverage	6.635	99% Percentile	6.549
95% HW Approx. Gamma UTL with 95% Coverage	7.106		
95% WH USL	6.839	95% HW USL	7.353

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.159	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	10.16	90% Percentile (z)	2.906
95% UPL (t)	4.989	95% Percentile (z)	4.285
95% USL	10.73	99% Percentile (z)	8.876

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	5.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.4	95% BCA Bootstrap UTL with 95% Coverage	5.4
95% UPL	5.4	90% Percentile	4.118
90% Chebyshev UPL	6.302	95% Percentile	4.703
95% Chebyshev UPL	8.558	99% Percentile	5.261
95% USL	5.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	1	Number of Non-Detects	17
Number of Distinct Detects	1	Number of Distinct Non-Detects	15
Minimum Detect	3.59	Minimum Non-Detect	0.01

Maximum Detect	3.59	Maximum Non-Detect	1.29
Variance Detected	N/A	Percent Non-Detects	94.44%
Mean Detected	3.59	SD Detected	N/A
Mean of Detected Logged Data	1.278	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_aquatic plants_awqc) was not processed!

concDL (copper_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	1	Number of Non-Detects	17
Number of Distinct Detects	1	Number of Distinct Non-Detects	15
Minimum Detect	3.59	Minimum Non-Detect	0.01
Maximum Detect	3.59	Maximum Non-Detect	1.29
Variance Detected	N/A	Percent Non-Detects	94.44%
Mean Detected	3.59	SD Detected	N/A
Mean of Detected Logged Data	1.278	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_bmi_awqc) was not processed!

concDL (copper_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	1	Number of Non-Detects	17
Number of Distinct Detects	1	Number of Distinct Non-Detects	15
Minimum Detect	3.59	Minimum Non-Detect	0.01
Maximum Detect	3.59	Maximum Non-Detect	1.29
Variance Detected	N/A	Percent Non-Detects	94.44%
Mean Detected	3.59	SD Detected	N/A
Mean of Detected Logged Data	1.278	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_fish_awqc) was not processed!

concDL (copper_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0038	First Quartile	0.103
Second Largest	2.8	Median	0.33
Maximum	7	Third Quartile	0.865
Mean	0.87	SD	1.664
Coefficient of Variation	1.913	Skewness	3.352
Mean of logged Data	-1.533	SD of logged Data	2.096

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.522	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.374	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.951	90% Percentile (z)	3.002
	95% UPL (t)	3.843	95% Percentile (z)	3.606
	95% USL	5.036	99% Percentile (z)	4.74

Gamma GOF Test

A-D Test Statistic	0.514	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.808	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.184	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.216	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.462	k star (bias corrected MLE)	0.422
Theta hat (MLE)	1.883	Theta star (bias corrected MLE)	2.062
nu hat (MLE)	16.62	nu star (bias corrected)	15.18
MLE Mean (bias corrected)	0.87	MLE Sd (bias corrected)	1.339

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3.5	90% Percentile	2.433

95% Hawkins Wixley (HW) Approx. Gamma UPL		3.793	95% Percentile	3.547
95% WH Approx. Gamma UTL with	95% Coverage	5.944	99% Percentile	6.334
95% HW Approx. Gamma UTL with	95% Coverage	7.066		
	95% WH USL	6.168	95% HW USL	7.383

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.914	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.209	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	36.92	90% Percentile (z)	3.169
	95% UPL (t)	9.147	95% Percentile (z)	6.787
	95% USL	41.09	99% Percentile (z)	28.31

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	7
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	7	95% BCA Bootstrap UTL with 95% Coverage	7
	95% UPL	7	90% Percentile	1.491
	90% Chebyshev UPL	5.998	95% Percentile	3.43
	95% Chebyshev UPL	8.321	99% Percentile	6.286
	95% USL	7		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0038	First Quartile	0.103
Second Largest	2.8	Median	0.33
Maximum	7	Third Quartile	0.865
Mean	0.87	SD	1.664
Coefficient of Variation	1.913	Skewness	3.352

Mean of logged Data	-1.533	SD of logged Data	2.096

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.522	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.374	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.951	90% Percentile (z)	3.002
	95% UPL (t)	3.843	95% Percentile (z)	3.606
	95% USL	5.036	99% Percentile (z)	4.74

Gamma GOF Test

A-D Test Statistic	0.514	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.808	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.184	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.216	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.462	k star (bias corrected MLE)	0.422
Theta hat (MLE)	1.883	Theta star (bias corrected MLE)	2.062
nu hat (MLE)	16.62	nu star (bias corrected)	15.18
MLE Mean (bias corrected)	0.87	MLE Sd (bias corrected)	1.339

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3.5	90% Percentile	2.433
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.793	95% Percentile	3.547
95% WH Approx. Gamma UTL with 95% Coverage	5.944	99% Percentile	6.334
95% HW Approx. Gamma UTL with 95% Coverage	7.066		
95% WH USL	6.168	95% HW USL	7.383

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.914	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.209	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	36.92	90% Percentile (z)		3.169
	95% UPL (t)	9.147	95% Percentile (z)		6.787
	95% USL	41.09	99% Percentile (z)		28.31

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	7
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	7	95% BCA Bootstrap UTL with	95% Coverage	7
	95% UPL	7		90% Percentile	1.491
	90% Chebyshev UPL	5.998		95% Percentile	3.43
	95% Chebyshev UPL	8.321		99% Percentile	6.286
	95% USL	7			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0038	First Quartile	0.103
Second Largest	2.8	Median	0.33
Maximum	7	Third Quartile	0.865
Mean	0.87	SD	1.664
Coefficient of Variation	1.913	Skewness	3.352
Mean of logged Data	-1.533	SD of logged Data	2.096

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.522	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.374	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.951		90% Percentile (z)	3.002
	95% UPL (t)	3.843		95% Percentile (z)	3.606
	95% USL	5.036		99% Percentile (z)	4.74

Gamma GOF Test

A-D Test Statistic	0.514	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.808	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.184	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.216	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.462	k star (bias corrected MLE)	0.422
Theta hat (MLE)	1.883	Theta star (bias corrected MLE)	2.062
nu hat (MLE)	16.62	nu star (bias corrected)	15.18
MLE Mean (bias corrected)	0.87	MLE Sd (bias corrected)	1.339

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3.5	90% Percentile	2.433
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.793	95% Percentile	3.547
95% WH Approx. Gamma UTL with 95% Coverage	5.944	99% Percentile	6.334
95% HW Approx. Gamma UTL with 95% Coverage	7.066		
95% WH USL	6.168	95% HW USL	7.383

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.914	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.209	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	36.92		90% Percentile (z)	3.169
	95% UPL (t)	9.147		95% Percentile (z)	6.787
	95% USL	41.09		99% Percentile (z)	28.31

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	7
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	7	95% BCA Bootstrap UTL with	95% Coverage	7
	95% UPL	7		90% Percentile	1.491

90% Chebyshev UPL	5.998	95% Percentile	3.43
95% Chebyshev UPL	8.321	99% Percentile	6.286
95% USL	7		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	5.3000E-4	First Quartile	0.0131
Second Largest	0.16	Median	0.0395
Maximum	0.75	Third Quartile	0.0913
Mean	0.0878	SD	0.171
Coefficient of Variation	1.949	Skewness	3.788
Mean of logged Data	-3.708	SD of logged Data	2.006

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.475	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.337	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.508	90% Percentile (z)	0.307
95% UPL (t)	0.394	95% Percentile (z)	0.369
95% USL	0.516	99% Percentile (z)	0.486

Gamma GOF Test

A-D Test Statistic	0.636	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.8	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.164	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.498	k star (bias corrected MLE)	0.452

Theta hat (MLE)	0.176	Theta star (bias corrected MLE)	0.194
nu hat (MLE)	17.94	nu star (bias corrected)	16.28
MLE Mean (bias corrected)	0.0878	MLE Sd (bias corrected)	0.131

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.346	90% Percentile	0.242
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.376	95% Percentile	0.349
95% WH Approx. Gamma UTL with 95% Coverage	0.58	99% Percentile	0.615
95% HW Approx. Gamma UTL with 95% Coverage	0.688		
95% WH USL	0.602	95% HW USL	0.718

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.89	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.262	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	3.359	90% Percentile (z)	0.32
95% UPL (t)	0.884	95% Percentile (z)	0.664
95% USL	3.72	99% Percentile (z)	2.605

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.75
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.75	95% BCA Bootstrap UTL with 95% Coverage	0.75
95% UPL	0.75	90% Percentile	0.125
90% Chebyshev UPL	0.615	95% Percentile	0.248
95% Chebyshev UPL	0.854	99% Percentile	0.65
95% USL	0.75		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0067	First Quartile	0.188
Second Largest	5.8	Median	0.63
Maximum	13	Third Quartile	1.55
Mean	1.639	SD	3.135
Coefficient of Variation	1.913	Skewness	3.24
Mean of logged Data	-0.925	SD of logged Data	2.111

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.528	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.381	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	9.33	90% Percentile (z)	5.657
	95% UPL (t)	7.243	95% Percentile (z)	6.796
	95% USL	9.49	99% Percentile (z)	8.933

Gamma GOF Test

A-D Test Statistic	0.503	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.81	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.19	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.216	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.454	k star (bias corrected MLE)	0.416
Theta hat (MLE)	3.607	Theta star (bias corrected MLE)	3.943
nu hat (MLE)	16.36	nu star (bias corrected)	14.97
MLE Mean (bias corrected)	1.639	MLE Sd (bias corrected)	2.542

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		6.617	90% Percentile	4.598
95% Hawkins Wixley (HW) Approx. Gamma UPL		7.162	95% Percentile	6.72
95% WH Approx. Gamma UTL with	95% Coverage	11.27	99% Percentile	12.03
95% HW Approx. Gamma UTL with	95% Coverage	13.39		
	95% WH USL	11.7	95% HW USL	13.99

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.919	**Shapiro Wilk Lognormal GOF Test**

10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.199	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	70.29	90% Percentile (z)	5.931
	95% UPL (t)	17.25	95% Percentile (z)	12.77
	95% USL	78.28	99% Percentile (z)	53.8

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	13
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	13	95% BCA Bootstrap UTL with 95% Coverage	13
	95% UPL	13	90% Percentile	2.93
	90% Chebyshev UPL	11.3	95% Percentile	6.88
	95% Chebyshev UPL	15.68	99% Percentile	11.78
	95% USL	13		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (doc_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	17	Number of Non-Detects	1
Number of Distinct Detects	16	Number of Distinct Non-Detects	1
Minimum Detect	0.28	Minimum Non-Detect	0.07
Maximum Detect	3.05	Maximum Non-Detect	0.07
Variance Detected	0.536	Percent Non-Detects	5.556%
Mean Detected	0.964	SD Detected	0.732
Mean of Detected Logged Data	-0.266	SD of Detected Logged Data	0.681

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.819	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.235	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.914	KM SD	0.72
95% UTL95% Coverage	2.681	95% KM UPL (t)	2.201
90% KM Percentile (z)	1.837	95% KM Percentile (z)	2.099
99% KM Percentile (z)	2.589	95% KM USL	2.717

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.912	SD	0.743
95% UTL95% Coverage	2.736	95% UPL (t)	2.241
90% Percentile (z)	1.865	95% Percentile (z)	2.135
99% Percentile (z)	2.642	95% USL	2.774

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.491	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.748	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.153	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.211	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.335	k star (bias corrected MLE)	1.962
Theta hat (MLE)	0.413	Theta star (bias corrected MLE)	0.491
nu hat (MLE)	79.38	nu star (bias corrected)	66.7
MLE Mean (bias corrected)	0.964		
MLE Sd (bias corrected)	0.688	95% Percentile of Chisquare (2kstar)	9.364

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.911
Maximum	3.05	Median	0.693
SD	0.745	CV	0.818
k hat (MLE)	1.351	k star (bias corrected MLE)	1.163
Theta hat (MLE)	0.674	Theta star (bias corrected MLE)	0.783

nu hat (MLE)	48.63	nu star (bias corrected)	41.86
MLE Mean (bias corrected)	0.911	MLE Sd (bias corrected)	0.845
95% Percentile of Chisquare (2kstar)	6.608	90% Percentile	2.021
95% Percentile	2.588	99% Percentile	3.892

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.883	4.46	95% Approx. Gamma UPL	2.679	2.916
95% Gamma USL	3.987	4.6			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.914	SD (KM)	0.72
Variance (KM)	0.519	SE of Mean (KM)	0.175
k hat (KM)	1.611	k star (KM)	1.38
nu hat (KM)	58.01	nu star (KM)	49.68
theta hat (KM)	0.567	theta star (KM)	0.662
80% gamma percentile (KM)	1.427	90% gamma percentile (KM)	1.944
95% gamma percentile (KM)	2.449	99% gamma percentile (KM)	3.596

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.385	3.637	95% Approx. Gamma UPL	2.41	2.498
95% KM Gamma Percentile	2.229	2.294	95% Gamma USL	3.469	3.738

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.957	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.91	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.116	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.19	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.918	Mean in Log Scale	-0.36
SD in Original Scale	0.736	SD in Log Scale	0.771
95% UTL95% Coverage	4.621	95% BCA UTL95% Coverage	3.05
95% Bootstrap (%) UTL95% Coverage	3.05	95% UPL (t)	2.767
90% Percentile (z)	1.874	95% Percentile (z)	2.479
99% Percentile (z)	4.191	95% USL	4.806

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.399	95% KM UTL (Lognormal)95% Coverage	5.322
KM SD of Logged Data	0.844	95% KM UPL (Lognormal)	3.034
95% KM Percentile Lognormal (z)	2.69	95% KM USL (Lognormal)	5.557

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.912	Mean in Log Scale	-0.438
SD in Original Scale	0.743	SD in Log Scale	0.983
95% UTL95% Coverage	7.192	95% UPL (t)	3.739
90% Percentile (z)	2.275	95% Percentile (z)	3.251
99% Percentile (z)	6.351	95% USL	7.562

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	3.05
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3.05
95% USL	3.05	95% KM Chebyshev UPL	4.139

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (hardness_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	47	First Quartile	58.78
Second Largest	112	Median	68.05
Maximum	133	Third Quartile	96.63
Mean	78.48	SD	24.68
Coefficient of Variation	0.314	Skewness	0.691
Mean of logged Data	4.318	SD of logged Data	0.304

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.905	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.228	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	139	90% Percentile (z)	110.1
	95% UPL (t)	122.6	95% Percentile (z)	119.1
	95% USL	140.3	99% Percentile (z)	135.9

Gamma GOF Test

A-D Test Statistic	0.69	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.222	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.37	k star (bias corrected MLE)	9.516
Theta hat (MLE)	6.9	Theta star (bias corrected MLE)	8.248
nu hat (MLE)	409.5	nu star (bias corrected)	342.6
MLE Mean (bias corrected)	78.48	MLE Sd (bias corrected)	25.44

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	126.3	90% Percentile	112.3
95% Hawkins Wixley (HW) Approx. Gamma UPL	127	95% Percentile	124.5
95% WH Approx. Gamma UTL with 95% Coverage	149.6	99% Percentile	149.4
95% HW Approx. Gamma UTL with 95% Coverage	151.4		
95% WH USL	151.4	95% HW USL	153.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.209	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	158.3	90% Percentile (z)	110.9
	95% UPL (t)	129.3	95% Percentile (z)	123.8
	95% USL	160.8	99% Percentile (z)	152.4

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	133
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	133	95% BCA Bootstrap UTL with	95% Coverage	133
	95% UPL	133	90% Percentile		107.8

90% Chebyshev UPL	154.5	95% Percentile	115.2
95% Chebyshev UPL	189	99% Percentile	129.4
95% USL	133		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
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concDL (iron_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	12		
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	6
Minimum Detect	170	Minimum Non-Detect	1.5
Maximum Detect	5480	Maximum Non-Detect	78
Variance Detected	4666850	Percent Non-Detects	66.67%
Mean Detected	1740	SD Detected	2160
Mean of Detected Logged Data	6.703	SD of Detected Logged Data	1.393

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.787	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.713	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.323	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.373	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	581	KM SD	1403
95% UTL95% Coverage	4022	95% KM UPL (t)	3088
90% KM Percentile (z)	2379	95% KM Percentile (z)	2888
99% KM Percentile (z)	3845	95% KM USL	4094

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	584.4	SD	1442
95% UTL95% Coverage	4122	95% UPL (t)	3162
90% Percentile (z)	2433	95% Percentile (z)	2956
99% Percentile (z)	3939	95% USL	4195

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.402	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.72	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.229	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.343	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.785	k star (bias corrected MLE)	0.503
Theta hat (MLE)	2217	Theta star (bias corrected MLE)	3456
nu hat (MLE)	9.416	nu star (bias corrected)	6.041
MLE Mean (bias corrected)	1740		
MLE Sd (bias corrected)	2452	95% Percentile of Chisquare (2kstar)	3.859

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

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For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	580
Maximum	5480	Median	0.01
SD	1444	CV	2.49
k hat (MLE)	0.111	k star (bias corrected MLE)	0.13
Theta hat (MLE)	5212	Theta star (bias corrected MLE)	4470
nu hat (MLE)	4.006	nu star (bias corrected)	4.672
MLE Mean (bias corrected)	580	MLE Sd (bias corrected)	1610
95% Percentile of Chisquare (2kstar)	1.465	90% Percentile	1676
95% Percentile	3274	99% Percentile	8060

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5041	6419	95% Approx. Gamma UPL	2438	2524
95% Gamma USL	5294	6838			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	581	SD (KM)	1403
Variance (KM)	1967988	SE of Mean (KM)	362.2
k hat (KM)	0.172	k star (KM)	0.18
nu hat (KM)	6.175	nu star (KM)	6.479
theta hat (KM)	3387	theta star (KM)	3228
80% gamma percentile (KM)	720.8	90% gamma percentile (KM)	1752
95% gamma percentile (KM)	3074	99% gamma percentile (KM)	6777

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4452	5108	95% Approx. Gamma UPL	2258	2226
95% KM Gamma Percentile	1910	1818	95% Gamma USL	4663	5408

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.929	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.826	Detected Data appear Lognormal at 10% Significance Level
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10% Lilliefors Critical Value	0.298	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	587	Mean in Log Scale	3.325
SD in Original Scale	1441	SD in Log Scale	2.806
95% UTL95% Coverage	27140	95% BCA UTL95% Coverage	5480
95% Bootstrap (%) UTL95% Coverage	5480	95% UPL (t)	4191
90% Percentile (z)	1014	95% Percentile (z)	2810
99% Percentile (z)	19022	95% USL	31317

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.505	95% KM UTL (Lognormal)95% Coverage	22173
KM SD of Logged Data	3.058	95% KM UPL (Lognormal)	2895
95% KM Percentile Lognormal (z)	1873	95% KM USL (Lognormal)	25917

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	584.4	Mean in Log Scale	2.771
SD in Original Scale	1442	SD in Log Scale	3.188
95% UTL95% Coverage	39762	95% UPL (t)	4762
90% Percentile (z)	949.7	95% Percentile (z)	3024
99% Percentile (z)	26553	95% USL	46784

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Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	5480
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5480
95% USL	5480	95% KM Chebyshev UPL	6863

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concDL (iron_ug/l_concentration_bmi_awqc)

General Statistics

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KM Mean	581	KM SD	1403
95% UTL95% Coverage	4022	95% KM UPL (t)	3088
90% KM Percentile (z)	2379	95% KM Percentile (z)	2888
99% KM Percentile (z)	3845	95% KM USL	4094

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	584.4	SD	1442
95% UTL95% Coverage	4122	95% UPL (t)	3162
90% Percentile (z)	2433	95% Percentile (z)	2956
99% Percentile (z)	3939	95% USL	4195

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A-D Test Statistic	0.402	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.72	Detected data appear Gamma Distributed at 5% Significance Level
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95% Percentile of Chisquare (2kstar)	1.465	90% Percentile	1676
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The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
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Estimates of Gamma Parameters using KM Estimates

Mean (KM)	581	SD (KM)	1403
Variance (KM)	1967988	SE of Mean (KM)	362.2
k hat (KM)	0.172	k star (KM)	0.18
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Mean in Original Scale	584.4	Mean in Log Scale	2.771
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concDL (iron_ug/l_concentration_fish_awqc)

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KM SD of Logged Data	3.058	95% KM UPL (Lognormal)	2895
95% KM Percentile Lognormal (z)	1873	95% KM USL (Lognormal)	25917

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	584.4	Mean in Log Scale	2.771
SD in Original Scale	1442	SD in Log Scale	3.188
95% UTL95% Coverage	39762	95% UPL (t)	4762
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Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	5480
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5480
95% USL	5480	95% KM Chebyshev UPL	6863

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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concDL (iron_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	12
Minimum	0.0015	First Quartile	0.0015
Second Largest	3.2	Median	0.018
Maximum	5.5	Third Quartile	0.238
Mean	0.588	SD	1.441

Coefficient of Variation	2.45	Skewness	2.961
Mean of logged Data	-3.675	SD of logged Data	2.889

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.477	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.377	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	4.123	90% Percentile (z)	2.435
95% UPL (t)	3.164	95% Percentile (z)	2.959
95% USL	4.197	99% Percentile (z)	3.941

Gamma GOF Test

A-D Test Statistic	1.421	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.876	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.219	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.225	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.229	k star (bias corrected MLE)	0.228
Theta hat (MLE)	2.568	Theta star (bias corrected MLE)	2.581
nu hat (MLE)	8.246	nu star (bias corrected)	8.205
MLE Mean (bias corrected)	0.588	MLE Sd (bias corrected)	1.232

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.436	90% Percentile	1.775
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.469	95% Percentile	2.925
95% WH Approx. Gamma UTL with 95% Coverage	4.686	99% Percentile	6.028
95% HW Approx. Gamma UTL with 95% Coverage	5.445		
95% WH USL	4.901	95% HW USL	5.751

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.865	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.225	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	30.33	90% Percentile (z)		1.028
	95% UPL (t)	4.431	95% Percentile (z)		2.936
	95% USL	35.14	99% Percentile (z)		21.03

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	18	95% UTL with	95% Coverage	5.5
	Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	5.5	95% BCA Bootstrap UTL with	95% Coverage	5.5
	95% UPL	5.5		90% Percentile	1.569
	90% Chebyshev UPL	5.03		95% Percentile	3.545
	95% Chebyshev UPL	7.042		99% Percentile	5.109
	95% USL	5.5			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	12
Minimum	1.2000E-4	First Quartile	1.2000E-4
Second Largest	0.27	Median	0.00151
Maximum	0.46	Third Quartile	0.02
Mean	0.0493	SD	0.121
Coefficient of Variation	2.45	Skewness	2.953
Mean of logged Data	-6.175	SD of logged Data	2.907

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.477	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.377	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.346		90% Percentile (z)	0.204
	95% UPL (t)	0.265		95% Percentile (z)	0.248
	95% USL	0.352		99% Percentile (z)	0.33

Gamma GOF Test

A-D Test Statistic	1.412	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.876	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.218	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.225	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.228	k star (bias corrected MLE)	0.227
Theta hat (MLE)	0.216	Theta star (bias corrected MLE)	0.217
nu hat (MLE)	8.201	nu star (bias corrected)	8.167
MLE Mean (bias corrected)	0.0493	MLE Sd (bias corrected)	0.103

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.204	90% Percentile	0.149
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.207	95% Percentile	0.245
95% WH Approx. Gamma UTL with 95% Coverage	0.393	99% Percentile	0.506
95% HW Approx. Gamma UTL with 95% Coverage	0.457		
95% WH USL	0.411	95% HW USL	0.483

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.866	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.226	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	2.603		90% Percentile (z)	0.0864
	95% UPL (t)	0.376		95% Percentile (z)	0.248
	95% USL	3.02		99% Percentile (z)	1.801

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18		95% UTL with	95% Coverage	0.46
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL			0.603
		Approximate Sample Size needed to achieve specified CC			59
95% Percentile Bootstrap UTL with	95% Coverage	0.46	95% BCA Bootstrap UTL with	95% Coverage	0.46

95% UPL	0.46	90% Percentile	0.131
90% Chebyshev UPL	0.422	95% Percentile	0.299
95% Chebyshev UPL	0.59	99% Percentile	0.428
95% USL	0.46		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	12
Minimum	0.0015	First Quartile	0.0015
Second Largest	3.2	Median	0.018
Maximum	5.5	Third Quartile	0.238
Mean	0.588	SD	1.441
Coefficient of Variation	2.45	Skewness	2.961
Mean of logged Data	-3.675	SD of logged Data	2.889

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.477	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.377	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.123	90% Percentile (z)	2.435
	95% UPL (t)	3.164	95% Percentile (z)	2.959
	95% USL	4.197	99% Percentile (z)	3.941

Gamma GOF Test

A-D Test Statistic	1.421	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.876	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.219	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.225	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.229	k star (bias corrected MLE)	0.228
Theta hat (MLE)	2.568	Theta star (bias corrected MLE)	2.581
nu hat (MLE)	8.246	nu star (bias corrected)	8.205
MLE Mean (bias corrected)	0.588	MLE Sd (bias corrected)	1.232

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.436	90% Percentile	1.775
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.469	95% Percentile	2.925
95% WH Approx. Gamma UTL with 95% Coverage	4.686	99% Percentile	6.028
95% HW Approx. Gamma UTL with 95% Coverage	5.445		
95% WH USL	4.901	95% HW USL	5.751

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.865	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.225	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	30.33	90% Percentile (z)	1.028
95% UPL (t)	4.431	95% Percentile (z)	2.936
95% USL	35.14	99% Percentile (z)	21.03

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	5.5
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.5	95% BCA Bootstrap UTL with 95% Coverage	5.5
95% UPL	5.5	90% Percentile	1.569
90% Chebyshev UPL	5.03	95% Percentile	3.545
95% Chebyshev UPL	7.042	99% Percentile	5.109
95% USL	5.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_bmi_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0028	First Quartile	0.00398
Second Largest	4.2	Median	0.0355
Maximum	6.4	Third Quartile	0.325
Mean	0.779	SD	1.734
Coefficient of Variation	2.226	Skewness	2.697
Mean of logged Data	-2.988	SD of logged Data	2.677

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.524	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.373	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.034	90% Percentile (z)	3.002
	95% UPL (t)	3.879	95% Percentile (z)	3.632
	95% USL	5.122	99% Percentile (z)	4.814

Gamma GOF Test

A-D Test Statistic	1.291	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.862	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.196	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.223	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.258	k star (bias corrected MLE)	0.252
Theta hat (MLE)	3.02	Theta star (bias corrected MLE)	3.092
nu hat (MLE)	9.289	nu star (bias corrected)	9.074
MLE Mean (bias corrected)	0.779	MLE Sd (bias corrected)	1.552

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		3.319	90% Percentile	2.338
95% Hawkins Wixley (HW) Approx. Gamma UPL		3.428	95% Percentile	3.763
95% WH Approx. Gamma UTL with	95% Coverage	6.265	99% Percentile	7.552
95% HW Approx. Gamma UTL with	95% Coverage	7.36		
	95% WH USL	6.544	95% HW USL	7.76

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.882	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.201	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	35.81	90% Percentile (z)		1.556
	95% UPL (t)	6.026	95% Percentile (z)		4.116
	95% USL	41.05	99% Percentile (z)		25.51

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	6.4
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	6.4	95% BCA Bootstrap UTL with	95% Coverage	6.4
	95% UPL	6.4	90% Percentile		2.31
	90% Chebyshev UPL	6.125	95% Percentile		4.53
	95% Chebyshev UPL	8.546	99% Percentile		6.026
	95% USL	6.4			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	12
Minimum	0.0015	First Quartile	0.0015
Second Largest	3.2	Median	0.018
Maximum	5.5	Third Quartile	0.238
Mean	0.588	SD	1.441
Coefficient of Variation	2.45	Skewness	2.961
Mean of logged Data	-3.675	SD of logged Data	2.889

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.477	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.377	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.123	90% Percentile (z)	2.435
	95% UPL (t)	3.164	95% Percentile (z)	2.959
	95% USL	4.197	99% Percentile (z)	3.941

Gamma GOF Test

A-D Test Statistic	1.421	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.876	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.219	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.225	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.229	k star (bias corrected MLE)	0.228
Theta hat (MLE)	2.568	Theta star (bias corrected MLE)	2.581
nu hat (MLE)	8.246	nu star (bias corrected)	8.205
MLE Mean (bias corrected)	0.588	MLE Sd (bias corrected)	1.232

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.436	90% Percentile	1.775
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.469	95% Percentile	2.925
95% WH Approx. Gamma UTL with	95% Coverage	4.686	99% Percentile	6.028
95% HW Approx. Gamma UTL with	95% Coverage	5.445		
	95% WH USL	4.901	95% HW USL	5.751

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.865	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.225	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	30.33	90% Percentile (z)	1.028
	95% UPL (t)	4.431	95% Percentile (z)	2.936
	95% USL	35.14	99% Percentile (z)	21.03

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	5.5
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.5	95% BCA Bootstrap UTL with 95% Coverage	5.5
95% UPL	5.5	90% Percentile	1.569
90% Chebyshev UPL	5.03	95% Percentile	3.545
95% Chebyshev UPL	7.042	99% Percentile	5.109
95% USL	5.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0044	First Quartile	0.0077
Second Largest	5.4	Median	0.032
Maximum	6.6	Third Quartile	0.328
Mean	0.976	SD	1.963
Coefficient of Variation	2.012	Skewness	2.272
Mean of logged Data	-2.561	SD of logged Data	2.596

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.567	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.407	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	5.791	90% Percentile (z)	3.491
95% UPL (t)	4.484	95% Percentile (z)	4.205
95% USL	5.891	99% Percentile (z)	5.542

Gamma GOF Test

A-D Test Statistic	1.35	**Anderson-Darling Gamma GOF Test**	

5% A-D Critical Value	0.854	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.254	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.222	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.276	k star (bias corrected MLE)	0.267
Theta hat (MLE)	3.539	Theta star (bias corrected MLE)	3.657
nu hat (MLE)	9.922	nu star (bias corrected)	9.602
MLE Mean (bias corrected)	0.976	MLE Sd (bias corrected)	1.889

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4.254	90% Percentile	2.913
95% Hawkins Wixley (HW) Approx. Gamma UPL	4.469	95% Percentile	4.63
95% WH Approx. Gamma UTL with 95% Coverage	7.941	99% Percentile	9.162
95% HW Approx. Gamma UTL with 95% Coverage	9.462		
95% WH USL	8.288	95% HW USL	9.967

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	44.96	90% Percentile (z)	2.149
95% UPL (t)	7.986	95% Percentile (z)	5.518
95% USL	51.32	99% Percentile (z)	32.36

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	6.6
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	6.6	95% BCA Bootstrap UTL with 95% Coverage	6.6
95% UPL	6.6	90% Percentile	3.51
90% Chebyshev UPL	7.026	95% Percentile	5.58
95% Chebyshev UPL	9.767	99% Percentile	6.396
95% USL	6.6		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers

and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	11		
Number of Detects	2	Number of Non-Detects	16
Number of Distinct Detects	2	Number of Distinct Non-Detects	9
Minimum Detect	0.877	Minimum Non-Detect	0.009
Maximum Detect	1.24	Maximum Non-Detect	0.256
Variance Detected	0.0659	Percent Non-Detects	88.89%
Mean Detected	1.059	SD Detected	0.257
Mean of Detected Logged Data	0.0419	SD of Detected Logged Data	0.245

Warning: Data set has only 2 Detected Values.

This is not enough to compute meaningful or reliable statistics and estimates.

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.126	KM SD	0.335
95% UTL95% Coverage	0.948	95% KM UPL (t)	0.725
90% KM Percentile (z)	0.555	95% KM Percentile (z)	0.677
99% KM Percentile (z)	0.906	95% KM USL	0.965

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.147	SD	0.34
95% UTL95% Coverage	0.98	95% UPL (t)	0.754
90% Percentile (z)	0.582	95% Percentile (z)	0.705
99% Percentile (z)	0.937	95% USL	0.997

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	33.68	k star (bias corrected MLE)	N/A

Theta hat (MLE)	0.0314	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	134.7	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A		
MLE Sd (bias corrected)	N/A	95% Percentile of Chisquare (2kstar)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.126	SD (KM)	0.335
Variance (KM)	0.112	SE of Mean (KM)	0.112
k hat (KM)	0.14	k star (KM)	0.154
nu hat (KM)	5.051	nu star (KM)	5.543
theta hat (KM)	0.895	theta star (KM)	0.816
80% gamma percentile (KM)	0.14	90% gamma percentile (KM)	0.374
95% gamma percentile (KM)	0.688	99% gamma percentile (KM)	1.594

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.785	0.747	95% Approx. Gamma UPL	0.427	0.374
95% KM Gamma Percentile	0.368	0.317	95% Gamma USL	0.818	0.784

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.287	Mean in Log Scale	-1.565
SD in Original Scale	0.301	SD in Log Scale	0.746
95% UTL95% Coverage	1.302	95% BCA UTL95% Coverage	1.24
95% Bootstrap (%) UTL95% Coverage	1.24	95% UPL (t)	0.793
90% Percentile (z)	0.544	95% Percentile (z)	0.713
99% Percentile (z)	1.185	95% USL	1.353

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.182	95% KM UTL (Lognormal)95% Coverage	0.597
KM SD of Logged Data	1.495	95% KM UPL (Lognormal)	0.221
95% KM Percentile Lognormal (z)	0.178	95% KM USL (Lognormal)	0.644

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.147	Mean in Log Scale	-3.751
SD in Original Scale	0.34	SD in Log Scale	1.871
95% UTL95% Coverage	2.314	95% UPL (t)	0.666
90% Percentile (z)	0.258	95% Percentile (z)	0.51
99% Percentile (z)	1.826	95% USL	2.546

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	1.24
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.24
95% USL	1.24	95% KM Chebyshev UPL	1.627

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	11		
Number of Detects	2	Number of Non-Detects	16
Number of Distinct Detects	2	Number of Distinct Non-Detects	9
Minimum Detect	0.877	Minimum Non-Detect	0.009
Maximum Detect	1.24	Maximum Non-Detect	0.256
Variance Detected	0.0659	Percent Non-Detects	88.89%
Mean Detected	1.059	SD Detected	0.257
Mean of Detected Logged Data	0.0419	SD of Detected Logged Data	0.245

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.126	KM SD	0.335
95% UTL95% Coverage	0.948	95% KM UPL (t)	0.725
90% KM Percentile (z)	0.555	95% KM Percentile (z)	0.677
99% KM Percentile (z)	0.906	95% KM USL	0.965

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.147	SD	0.34

95% UTL95% Coverage	0.98	95% UPL (t)	0.754
90% Percentile (z)	0.582	95% Percentile (z)	0.705
99% Percentile (z)	0.937	95% USL	0.997

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	33.68	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0314	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	134.7	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A		
MLE Sd (bias corrected)	N/A	95% Percentile of Chisquare (2kstar)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.126	SD (KM)	0.335
Variance (KM)	0.112	SE of Mean (KM)	0.112
k hat (KM)	0.14	k star (KM)	0.154
nu hat (KM)	5.051	nu star (KM)	5.543
theta hat (KM)	0.895	theta star (KM)	0.816
80% gamma percentile (KM)	0.14	90% gamma percentile (KM)	0.374
95% gamma percentile (KM)	0.688	99% gamma percentile (KM)	1.594

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.785	0.747	95% Approx. Gamma UPL	0.427	0.374
95% KM Gamma Percentile	0.368	0.317	95% Gamma USL	0.818	0.784

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.287	Mean in Log Scale	-1.565
SD in Original Scale	0.301	SD in Log Scale	0.746
95% UTL95% Coverage	1.302	95% BCA UTL95% Coverage	1.24
95% Bootstrap (%) UTL95% Coverage	1.24	95% UPL (t)	0.793
90% Percentile (z)	0.544	95% Percentile (z)	0.713
99% Percentile (z)	1.185	95% USL	1.353

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.182	95% KM UTL (Lognormal)95% Coverage	0.597
KM SD of Logged Data	1.495	95% KM UPL (Lognormal)	0.221
95% KM Percentile Lognormal (z)	0.178	95% KM USL (Lognormal)	0.644

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.147	Mean in Log Scale	-3.751
SD in Original Scale	0.34	SD in Log Scale	1.871
95% UTL95% Coverage	2.314	95% UPL (t)	0.666
90% Percentile (z)	0.258	95% Percentile (z)	0.51
99% Percentile (z)	1.826	95% USL	2.546

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	1.24
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.24
95% USL	1.24	95% KM Chebyshev UPL	1.627

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
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concDL (lead_ug/l_concentration_fish_awqc)

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Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	33.68	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0314	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	134.7	nu star (bias corrected)	N/A
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Mean (KM)	0.126	SD (KM)	0.335
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90% Percentile (z)	0.258	95% Percentile (z)	0.51
99% Percentile (z)	1.826	95% USL	2.546

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	1.24
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.24
95% USL	1.24	95% KM Chebyshev UPL	1.627

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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concDL (lead_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0033	First Quartile	0.00525
Second Largest	0.63	Median	0.0115
Maximum	0.89	Third Quartile	0.0973
Mean	0.117	SD	0.242
Coefficient of Variation	2.067	Skewness	2.725
Mean of logged Data	-3.749	SD of logged Data	1.819

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.522	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.367	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.71	90% Percentile (z)	0.427
	95% UPL (t)	0.549	95% Percentile (z)	0.515
	95% USL	0.723	99% Percentile (z)	0.68

Gamma GOF Test

A-D Test Statistic	1.473	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.819	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.251	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.218	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.409	k star (bias corrected MLE)	0.378
Theta hat (MLE)	0.286	Theta star (bias corrected MLE)	0.31
nu hat (MLE)	14.72	nu star (bias corrected)	13.6
MLE Mean (bias corrected)	0.117	MLE Sd (bias corrected)	0.19

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.472	90% Percentile	0.334
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.479	95% Percentile	0.496
95% WH Approx. Gamma UTL with 95% Coverage	0.829	99% Percentile	0.906
95% HW Approx. Gamma UTL with 95% Coverage	0.921		
95% WH USL	0.862	95% HW USL	0.964

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.873	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.207	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	2.042	90% Percentile (z)	0.242
	95% UPL (t)	0.608	95% Percentile (z)	0.469

95% USL	2.241	99% Percentile (z)	1.622

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.89
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.89	95% BCA Bootstrap UTL with 95% Coverage	0.89
95% UPL	0.89	90% Percentile	0.28
90% Chebyshev UPL	0.862	95% Percentile	0.669
95% Chebyshev UPL	1.2	99% Percentile	0.846
95% USL	0.89		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	11
Minimum	1.4000E-4	First Quartile	1.4000E-4
Second Largest	0.014	Median	5.5000E-4
Maximum	0.02	Third Quartile	0.00245
Mean	0.00283	SD	0.0054
Coefficient of Variation	1.909	Skewness	2.639
Mean of logged Data	-7.282	SD of logged Data	1.726

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.559	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.313	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0161	90% Percentile (z)	0.00975
95% UPL (t)	0.0125	95% Percentile (z)	0.0117

95% USL	0.0163	99% Percentile (z)	0.0154

Gamma GOF Test

A-D Test Statistic	1.447	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.809	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.245	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.216	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.456	k star (bias corrected MLE)	0.417
Theta hat (MLE)	0.0062	Theta star (bias corrected MLE)	0.00678
nu hat (MLE)	16.41	nu star (bias corrected)	15.01
MLE Mean (bias corrected)	0.00283	MLE Sd (bias corrected)	0.00438

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0113	90% Percentile	0.00793
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0116	95% Percentile	0.0116
95% WH Approx. Gamma UTL with 95% Coverage	0.0196	99% Percentile	0.0207
95% HW Approx. Gamma UTL with 95% Coverage	0.0218		
95% WH USL	0.0203	95% HW USL	0.0228

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.838	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.266	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0474	90% Percentile (z)	0.00628
95% UPL (t)	0.015	95% Percentile (z)	0.0118
95% USL	0.0518	99% Percentile (z)	0.0381

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.02
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.02	95% BCA Bootstrap UTL with 95% Coverage	0.02
95% UPL	0.02	90% Percentile	0.00707
90% Chebyshev UPL	0.0195	95% Percentile	0.0149
95% Chebyshev UPL	0.027	99% Percentile	0.019

95% USL	0.02

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represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0033	First Quartile	0.00525
Second Largest	0.63	Median	0.0115
Maximum	0.89	Third Quartile	0.0973
Mean	0.117	SD	0.242
Coefficient of Variation	2.067	Skewness	2.725
Mean of logged Data	-3.749	SD of logged Data	1.819

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.522	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.367	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.71	90% Percentile (z)	0.427
	95% UPL (t)	0.549	95% Percentile (z)	0.515
	95% USL	0.723	99% Percentile (z)	0.68

Gamma GOF Test

A-D Test Statistic	1.473	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.819	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.251	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.218	Data Not Gamma Distributed at 5% Significance Level

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Gamma Statistics

k hat (MLE)	0.409	k star (bias corrected MLE)	0.378
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95% Wilson Hilferty (WH) Approx. Gamma UPL	0.472	90% Percentile	0.334
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.479	95% Percentile	0.496
95% WH Approx. Gamma UTL with 95% Coverage	0.829	99% Percentile	0.906
95% HW Approx. Gamma UTL with 95% Coverage	0.921		
95% WH USL	0.862	95% HW USL	0.964

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.873	**Shapiro Wilk Lognormal GOF Test**	
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95% HW Approx. Gamma UTL with 95% Coverage	0.921		
95% WH USL	0.862	95% HW USL	0.964

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.873	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.207	**Lilliefors Lognormal GOF Test**

10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	2.042	90% Percentile (z)	0.242
	95% UPL (t)	0.608	95% Percentile (z)	0.469
	95% USL	2.241	99% Percentile (z)	1.622

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	0.89
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.89	95% BCA Bootstrap UTL with 95% Coverage	0.89
	95% UPL	0.89	90% Percentile	0.28
	90% Chebyshev UPL	0.862	95% Percentile	0.669
	95% Chebyshev UPL	1.2	99% Percentile	0.846
	95% USL	0.89		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	9.3000E-5	First Quartile	1.4500E-4
Second Largest	0.017	Median	3.3500E-4
Maximum	0.025	Third Quartile	0.0027
Mean	0.00325	SD	0.00671
Coefficient of Variation	2.065	Skewness	2.758
Mean of logged Data	-7.329	SD of logged Data	1.823

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.524	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.368	**Lilliefors GOF Test**

1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0197	90% Percentile (z)	0.0118
	95% UPL (t)	0.0152	95% Percentile (z)	0.0143
	95% USL	0.02	99% Percentile (z)	0.0189

Gamma GOF Test

A-D Test Statistic	1.436	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.819	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.246	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.218	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.41	k star (bias corrected MLE)	0.379
Theta hat (MLE)	0.00793	Theta star (bias corrected MLE)	0.00858
nu hat (MLE)	14.75	nu star (bias corrected)	13.63
MLE Mean (bias corrected)	0.00325	MLE Sd (bias corrected)	0.00528

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0131	90% Percentile	0.00926
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0133	95% Percentile	0.0138
95% WH Approx. Gamma UTL with 95% Coverage	0.023	99% Percentile	0.0251
95% HW Approx. Gamma UTL with 95% Coverage	0.0256		
95% WH USL	0.0239	95% HW USL	0.0268

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.876	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.206	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0574	90% Percentile (z)	0.00679
	95% UPL (t)	0.0171	95% Percentile (z)	0.0132
	95% USL	0.063	99% Percentile (z)	0.0456

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with	95% Coverage	0.025

Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.025	95% BCA Bootstrap UTL with	95% Coverage	0.025
	95% UPL	0.025		90% Percentile	0.00762
	90% Chebyshev UPL	0.0239		95% Percentile	0.0182
	95% Chebyshev UPL	0.0333		99% Percentile	0.0236
	95% USL	0.025			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	11
Minimum	0	First Quartile	0
Second Largest	0.067	Median	0.0011
Maximum	0.095	Third Quartile	0.00988
Mean	0.0122	SD	0.0259
Coefficient of Variation	2.128	Skewness	2.722

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.525	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.361	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0757	90% Percentile (z)		0.0454
	95% UPL (t)	0.0585	95% Percentile (z)		0.0548
	95% USL	0.077	99% Percentile (z)		0.0724

Gamma Statistics

Gamma Statistics Not Available

Cannot Compute Gamma Statistics!

Cannot Compute Log Statistics

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.095
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.095	95% BCA Bootstrap UTL with 95% Coverage	0.095
95% UPL	0.095	90% Percentile	0.0299
90% Chebyshev UPL	0.092	95% Percentile	0.0712
95% Chebyshev UPL	0.128	99% Percentile	0.0902
95% USL	0.095		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (magnesium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	2410	First Quartile	3253
Second Largest	7190	Median	4000
Maximum	7350	Third Quartile	5333
Mean	4376	SD	1477
Coefficient of Variation	0.338	Skewness	0.783
Mean of logged Data	8.333	SD of logged Data	0.326

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.919	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.183	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	8000	90% Percentile (z)	6269
95% UPL (t)	7016	95% Percentile (z)	6806
95% USL	8075	99% Percentile (z)	7813

Gamma GOF Test

A-D Test Statistic	0.344	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.147	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	9.952	k star (bias corrected MLE)	8.331
Theta hat (MLE)	439.7	Theta star (bias corrected MLE)	525.3
nu hat (MLE)	358.3	nu star (bias corrected)	299.9
MLE Mean (bias corrected)	4376	MLE Sd (bias corrected)	1516

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	7247	90% Percentile	6397
95% Hawkins Wixley (HW) Approx. Gamma UPL	7290	95% Percentile	7131
95% WH Approx. Gamma UTL with 95% Coverage	8661	99% Percentile	8650
95% HW Approx. Gamma UTL with 95% Coverage	8785		
95% WH USL	8777	95% HW USL	8908

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.964	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.125	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	9249	90% Percentile (z)	6314
95% UPL (t)	7445	95% Percentile (z)	7107
95% USL	9404	99% Percentile (z)	8875

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	7350
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7350	95% BCA Bootstrap UTL with 95% Coverage	7350
95% UPL	7350	90% Percentile	6420
90% Chebyshev UPL	8930	95% Percentile	7214
95% Chebyshev UPL	10992	99% Percentile	7323
95% USL	7350		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.48	Minimum Non-Detect	0.35
Maximum Detect	716	Maximum Non-Detect	1.49
Variance Detected	74180	Percent Non-Detects	22.22%
Mean Detected	265.7	SD Detected	272.4
Mean of Detected Logged Data	4.252	SD of Detected Logged Data	2.247

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.85	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.263	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	206.7	KM SD	256.4
95% UTL95% Coverage	835.7	95% KM UPL (t)	665
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.5
99% KM Percentile (z)	803.2	95% KM USL	848.8

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.8	SD	263.8
95% UTL95% Coverage	853.9	95% UPL (t)	678.3
90% Percentile (z)	544.9	95% Percentile (z)	640.7
99% Percentile (z)	820.5	95% USL	867.4

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.847	**Anderson-Darling GOF Test**

5% A-D Critical Value	0.797	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.207	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.48	k star (bias corrected MLE)	0.425
Theta hat (MLE)	553.1	Theta star (bias corrected MLE)	625
nu hat (MLE)	13.45	nu star (bias corrected)	11.9
MLE Mean (bias corrected)	265.7		
MLE Sd (bias corrected)	407.5	95% Percentile of Chisquare (2kstar)	3.459

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2.48	Mean	208.4
Maximum	716	Median	22.45
SD	262.4	CV	1.259
k hat (MLE)	0.417	k star (bias corrected MLE)	0.384
Theta hat (MLE)	500.4	Theta star (bias corrected MLE)	542.6
nu hat (MLE)	15	nu star (bias corrected)	13.83
MLE Mean (bias corrected)	208.4	MLE Sd (bias corrected)	336.3
95% Percentile of Chisquare (2kstar)	3.237	90% Percentile	592.9
95% Percentile	878.2	99% Percentile	1599

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1619	2019	95% Approx. Gamma UPL	931	1043
95% Gamma USL	1683	2115			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	206.7	SD (KM)	256.4
Variance (KM)	65745	SE of Mean (KM)	62.72
k hat (KM)	0.65	k star (KM)	0.579
nu hat (KM)	23.4	nu star (KM)	20.84
theta hat (KM)	318	theta star (KM)	357.2
80% gamma percentile (KM)	340.7	90% gamma percentile (KM)	542
95% gamma percentile (KM)	753.6	99% gamma percentile (KM)	1267

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW

95% Approx. Gamma UTL with 95% Coverage	1702	2265	95% Approx. Gamma UPL	949.9	1108
95% KM Gamma Percentile	824.9	934.1	95% Gamma USL	1772	2381

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.831	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.248	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.8	Mean in Log Scale	3.174
SD in Original Scale	263.8	SD in Log Scale	2.858
95% UTL95% Coverage	26482	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3951
90% Percentile (z)	931.2	95% Percentile (z)	2630
99% Percentile (z)	18440	95% USL	30639

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.074	95% KM UTL (Lognormal)95% Coverage	27655
KM SD of Logged Data	2.916	95% KM UPL (Lognormal)	3968
95% KM Percentile Lognormal (z)	2620	95% KM USL (Lognormal)	32091

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.8	Mean in Log Scale	3.072
SD in Original Scale	263.8	SD in Log Scale	3.016
95% UTL95% Coverage	35262	95% UPL (t)	4735
90% Percentile (z)	1030	95% Percentile (z)	3081
99% Percentile (z)	24066	95% USL	41127

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	716
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1355

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.48	Minimum Non-Detect	0.35
Maximum Detect	716	Maximum Non-Detect	1.49
Variance Detected	74180	Percent Non-Detects	22.22%
Mean Detected	265.7	SD Detected	272.4
Mean of Detected Logged Data	4.252	SD of Detected Logged Data	2.247

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.85	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.263	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	206.7	KM SD	256.4
95% UTL95% Coverage	835.7	95% KM UPL (t)	665
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.5
99% KM Percentile (z)	803.2	95% KM USL	848.8

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.8	SD	263.8
95% UTL95% Coverage	853.9	95% UPL (t)	678.3
90% Percentile (z)	544.9	95% Percentile (z)	640.7
99% Percentile (z)	820.5	95% USL	867.4

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.847	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.797	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.207	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.48	k star (bias corrected MLE)	0.425
Theta hat (MLE)	553.1	Theta star (bias corrected MLE)	625
nu hat (MLE)	13.45	nu star (bias corrected)	11.9
MLE Mean (bias corrected)	265.7		
MLE Sd (bias corrected)	407.5	95% Percentile of Chisquare (2kstar)	3.459

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2.48	Mean	208.4
Maximum	716	Median	22.45
SD	262.4	CV	1.259
k hat (MLE)	0.417	k star (bias corrected MLE)	0.384
Theta hat (MLE)	500.4	Theta star (bias corrected MLE)	542.6
nu hat (MLE)	15	nu star (bias corrected)	13.83
MLE Mean (bias corrected)	208.4	MLE Sd (bias corrected)	336.3
95% Percentile of Chisquare (2kstar)	3.237	90% Percentile	592.9
95% Percentile	878.2	99% Percentile	1599

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1619	2019	95% Approx. Gamma UPL	931	1043
95% Gamma USL	1683	2115			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	206.7	SD (KM)	256.4
Variance (KM)	65745	SE of Mean (KM)	62.72
k hat (KM)	0.65	k star (KM)	0.579
nu hat (KM)	23.4	nu star (KM)	20.84
theta hat (KM)	318	theta star (KM)	357.2
80% gamma percentile (KM)	340.7	90% gamma percentile (KM)	542
95% gamma percentile (KM)	753.6	99% gamma percentile (KM)	1267

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1702	2265	95% Approx. Gamma UPL	949.9	1108
95% KM Gamma Percentile	824.9	934.1	95% Gamma USL	1772	2381

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.831	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level	

Lilliefors Test Statistic	0.248	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.8	Mean in Log Scale	3.174
SD in Original Scale	263.8	SD in Log Scale	2.858
95% UTL95% Coverage	26482	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3951
90% Percentile (z)	931.2	95% Percentile (z)	2630
99% Percentile (z)	18440	95% USL	30639

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.074	95% KM UTL (Lognormal)95% Coverage	27655
KM SD of Logged Data	2.916	95% KM UPL (Lognormal)	3968
95% KM Percentile Lognormal (z)	2620	95% KM USL (Lognormal)	32091

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.8	Mean in Log Scale	3.072
SD in Original Scale	263.8	SD in Log Scale	3.016
95% UTL95% Coverage	35262	95% UPL (t)	4735
90% Percentile (z)	1030	95% Percentile (z)	3081
99% Percentile (z)	24066	95% USL	41127

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	716
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1355

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		

Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.48	Minimum Non-Detect	0.35
Maximum Detect	716	Maximum Non-Detect	1.49
Variance Detected	74180	Percent Non-Detects	22.22%
Mean Detected	265.7	SD Detected	272.4
Mean of Detected Logged Data	4.252	SD of Detected Logged Data	2.247

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.85	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.263	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	206.7	KM SD	256.4
95% UTL95% Coverage	835.7	95% KM UPL (t)	665
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.5
99% KM Percentile (z)	803.2	95% KM USL	848.8

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.8	SD	263.8
95% UTL95% Coverage	853.9	95% UPL (t)	678.3
90% Percentile (z)	544.9	95% Percentile (z)	640.7
99% Percentile (z)	820.5	95% USL	867.4

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.847	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.797	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.207	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.48	k star (bias corrected MLE)	0.425
Theta hat (MLE)	553.1	Theta star (bias corrected MLE)	625
nu hat (MLE)	13.45	nu star (bias corrected)	11.9
MLE Mean (bias corrected)	265.7		
MLE Sd (bias corrected)	407.5	95% Percentile of Chisquare (2kstar)	3.459

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2.48	Mean	208.4
Maximum	716	Median	22.45
SD	262.4	CV	1.259
k hat (MLE)	0.417	k star (bias corrected MLE)	0.384
Theta hat (MLE)	500.4	Theta star (bias corrected MLE)	542.6
nu hat (MLE)	15	nu star (bias corrected)	13.83
MLE Mean (bias corrected)	208.4	MLE Sd (bias corrected)	336.3
95% Percentile of Chisquare (2kstar)	3.237	90% Percentile	592.9
95% Percentile	878.2	99% Percentile	1599

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1619	2019	95% Approx. Gamma UPL	931	1043
95% Gamma USL	1683	2115			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	206.7	SD (KM)	256.4
Variance (KM)	65745	SE of Mean (KM)	62.72
k hat (KM)	0.65	k star (KM)	0.579
nu hat (KM)	23.4	nu star (KM)	20.84
theta hat (KM)	318	theta star (KM)	357.2
80% gamma percentile (KM)	340.7	90% gamma percentile (KM)	542
95% gamma percentile (KM)	753.6	99% gamma percentile (KM)	1267

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1702	2265	95% Approx. Gamma UPL	949.9	1108
95% KM Gamma Percentile	824.9	934.1	95% Gamma USL	1772	2381

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.831	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.248	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.8	Mean in Log Scale	3.174

SD in Original Scale	263.8	SD in Log Scale	2.858
95% UTL95% Coverage	26482	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3951
90% Percentile (z)	931.2	95% Percentile (z)	2630
99% Percentile (z)	18440	95% USL	30639

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.074	95% KM UTL (Lognormal)95% Coverage	27655
KM SD of Logged Data	2.916	95% KM UPL (Lognormal)	3968
95% KM Percentile Lognormal (z)	2620	95% KM USL (Lognormal)	32091

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.8	Mean in Log Scale	3.072
SD in Original Scale	263.8	SD in Log Scale	3.016
95% UTL95% Coverage	35262	95% UPL (t)	4735
90% Percentile (z)	1030	95% Percentile (z)	3081
99% Percentile (z)	24066	95% USL	41127

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	716
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1355

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	2.2000E-4	First Quartile	0.002
Second Largest	0.39	Median	0.0113
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.242	Skewness	0.866
Mean of logged Data	-4.112	SD of logged Data	2.741

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.516	90% Percentile (z)	0.33
	95% UPL (t)	0.41	95% Percentile (z)	0.388
	95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.16	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.836	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.213	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.331	k star (bias corrected MLE)	0.313
Theta hat (MLE)	0.386	Theta star (bias corrected MLE)	0.408
nu hat (MLE)	11.9	nu star (bias corrected)	11.25
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.228

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.607	90% Percentile	0.374
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.707	95% Percentile	0.576
95% WH Approx. Gamma UTL with 95% Coverage	1.087	99% Percentile	1.096
95% HW Approx. Gamma UTL with 95% Coverage	1.437		
95% WH USL	1.131	95% HW USL	1.51

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	13.63	90% Percentile (z)	0.549
	95% UPL (t)	2.197	95% Percentile (z)	1.487

95% USL	15.68	99% Percentile (z)	9.632

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.47	95% BCA Bootstrap UTL with 95% Coverage	0.47
95% UPL	0.47	90% Percentile	0.334
90% Chebyshev UPL	0.615	95% Percentile	0.402
95% Chebyshev UPL	0.836	99% Percentile	0.456
95% USL	0.47		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	2.2000E-5	First Quartile	1.6750E-4
Second Largest	0.044	Median	0.00139
Maximum	0.045	Third Quartile	0.0233
Mean	0.0129	SD	0.0165
Coefficient of Variation	1.28	Skewness	0.959
Mean of logged Data	-6.457	SD of logged Data	2.797

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.773	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.305	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0533	90% Percentile (z)	0.034
95% UPL (t)	0.0424	95% Percentile (z)	0.04

95% USL	0.0542	99% Percentile (z)	0.0512

Gamma GOF Test

A-D Test Statistic	0.974	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.837	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.21	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.323	k star (bias corrected MLE)	0.307
Theta hat (MLE)	0.0398	Theta star (bias corrected MLE)	0.042
nu hat (MLE)	11.65	nu star (bias corrected)	11.04
MLE Mean (bias corrected)	0.0129	MLE Sd (bias corrected)	0.0233

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0614	90% Percentile	0.0379
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0715	95% Percentile	0.0585
95% WH Approx. Gamma UTL with 95% Coverage	0.11	99% Percentile	0.112
95% HW Approx. Gamma UTL with 95% Coverage	0.146		
95% WH USL	0.115	95% HW USL	0.153

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.211	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1.496	90% Percentile (z)	0.0565
95% UPL (t)	0.233	95% Percentile (z)	0.156
95% USL	1.726	99% Percentile (z)	1.05

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.045
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.045	95% BCA Bootstrap UTL with 95% Coverage	0.045
95% UPL	0.045	90% Percentile	0.0398
90% Chebyshev UPL	0.0637	95% Percentile	0.0442
95% Chebyshev UPL	0.0867	99% Percentile	0.0448

95% USL	0.045

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	2.2000E-4	First Quartile	0.002
Second Largest	0.39	Median	0.0113
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.242	Skewness	0.866
Mean of logged Data	-4.112	SD of logged Data	2.741

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.516	90% Percentile (z)	0.33
	95% UPL (t)	0.41	95% Percentile (z)	0.388
	95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.16	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.836	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.213	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.331	k star (bias corrected MLE)	0.313
Theta hat (MLE)	0.386	Theta star (bias corrected MLE)	0.408
nu hat (MLE)	11.9	nu star (bias corrected)	11.25

MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.228

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.607	90% Percentile	0.374
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.707	95% Percentile	0.576
95% WH Approx. Gamma UTL with 95% Coverage	1.087	99% Percentile	1.096
95% HW Approx. Gamma UTL with 95% Coverage	1.437		
95% WH USL	1.131	95% HW USL	1.51

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	13.63	90% Percentile (z)	0.549
95% UPL (t)	2.197	95% Percentile (z)	1.487
95% USL	15.68	99% Percentile (z)	9.632

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.47	95% BCA Bootstrap UTL with 95% Coverage	0.47
95% UPL	0.47	90% Percentile	0.334
90% Chebyshev UPL	0.615	95% Percentile	0.402
95% Chebyshev UPL	0.836	99% Percentile	0.456
95% USL	0.47		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	2.2000E-4	First Quartile	0.002

Second Largest	0.39	Median	0.0113
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.242	Skewness	0.866
Mean of logged Data	-4.112	SD of logged Data	2.741

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.516	90% Percentile (z)	0.33
	95% UPL (t)	0.41	95% Percentile (z)	0.388
	95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.16	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.836	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.213	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.331	k star (bias corrected MLE)	0.313
Theta hat (MLE)	0.386	Theta star (bias corrected MLE)	0.408
nu hat (MLE)	11.9	nu star (bias corrected)	11.25
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.228

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.607	90% Percentile	0.374
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.707	95% Percentile	0.576
95% WH Approx. Gamma UTL with 95% Coverage	1.087	99% Percentile	1.096
95% HW Approx. Gamma UTL with 95% Coverage	1.437		
95% WH USL	1.131	95% HW USL	1.51

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**

10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	13.63	90% Percentile (z)	0.549
	95% UPL (t)	2.197	95% Percentile (z)	1.487
	95% USL	15.68	99% Percentile (z)	9.632

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.47	95% BCA Bootstrap UTL with 95% Coverage	0.47
	95% UPL	0.47	90% Percentile	0.334
	90% Chebyshev UPL	0.615	95% Percentile	0.402
	95% Chebyshev UPL	0.836	99% Percentile	0.456
	95% USL	0.47		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (ph_su_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	6.65	First Quartile	6.838
Second Largest	7.33	Median	7.03
Maximum	7.44	Third Quartile	7.173
Mean	7.013	SD	0.237
Coefficient of Variation	0.0338	Skewness	-0.0203
Mean of logged Data	1.947	SD of logged Data	0.0338

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.961	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors GOF Test**

1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	7.595	90% Percentile (z)	7.317
	95% UPL (t)	7.437	95% Percentile (z)	7.403
	95% USL	7.607	99% Percentile (z)	7.565

Gamma GOF Test

A-D Test Statistic	0.281	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.737	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.134	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	925.3	k star (bias corrected MLE)	771.1
Theta hat (MLE)	0.00758	Theta star (bias corrected MLE)	0.00909
nu hat (MLE)	33311	nu star (bias corrected)	27761
MLE Mean (bias corrected)	7.013	MLE Sd (bias corrected)	0.253

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	7.443	90% Percentile	7.339
95% Hawkins Wixley (HW) Approx. Gamma UPL	7.444	95% Percentile	7.434
95% WH Approx. Gamma UTL with 95% Coverage	7.609	99% Percentile	7.614
95% HW Approx. Gamma UTL with 95% Coverage	7.611		
95% WH USL	7.622	95% HW USL	7.624

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.96	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.132	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	7.616	90% Percentile (z)	7.32
	95% UPL (t)	7.447	95% Percentile (z)	7.411
	95% USL	7.629	99% Percentile (z)	7.584

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with	95% Coverage	7.44

Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7.44	95% BCA Bootstrap UTL with 95% Coverage	7.44
95% UPL	7.44	90% Percentile	7.288
90% Chebyshev UPL	7.744	95% Percentile	7.347
95% Chebyshev UPL	8.075	99% Percentile	7.421
95% USL	7.44		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (potassium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	700	First Quartile	802.5
Second Largest	2880	Median	1310
Maximum	7720	Third Quartile	2015
Mean	1847	SD	1638
Coefficient of Variation	0.887	Skewness	2.953
Mean of logged Data	7.291	SD of logged Data	0.645

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.651	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	5864	90% Percentile (z)	3946
95% UPL (t)	4774	95% Percentile (z)	4541
95% USL	5948	99% Percentile (z)	5657

Gamma GOF Test

A-D Test Statistic	0.769	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.75	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.15	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.206	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.327	k star (bias corrected MLE)	1.976
Theta hat (MLE)	793.5	Theta star (bias corrected MLE)	934.4
nu hat (MLE)	83.78	nu star (bias corrected)	71.15
MLE Mean (bias corrected)	1847	MLE Sd (bias corrected)	1314

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4516	90% Percentile	3602
95% Hawkins Wixley (HW) Approx. Gamma UPL	4524	95% Percentile	4397
95% WH Approx. Gamma UTL with 95% Coverage	6183	99% Percentile	6161
95% HW Approx. Gamma UTL with 95% Coverage	6334		
95% WH USL	6325	95% HW USL	6493

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.906	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.155	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	7133	90% Percentile (z)	3352
95% UPL (t)	4644	95% Percentile (z)	4236
95% USL	7371	99% Percentile (z)	6573

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	7720
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7720	95% BCA Bootstrap UTL with 95% Coverage	7720
95% UPL	7720	90% Percentile	2754
90% Chebyshev UPL	6895	95% Percentile	3606
95% Chebyshev UPL	9182	99% Percentile	6897
95% USL	7720		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sodium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	16	Number of Non-Detects	2
Number of Distinct Detects	15	Number of Distinct Non-Detects	2
Minimum Detect	1350	Minimum Non-Detect	690
Maximum Detect	4940	Maximum Non-Detect	880
Variance Detected	1167113	Percent Non-Detects	11.11%
Mean Detected	2479	SD Detected	1080
Mean of Detected Logged Data	7.739	SD of Detected Logged Data	0.391

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.834	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.844	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.248	Detected Data appear Normal at 1% Significance Level

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2281	KM SD	1135
95% UTL95% Coverage	5065	95% KM UPL (t)	4310
90% KM Percentile (z)	3735	95% KM Percentile (z)	4148
99% KM Percentile (z)	4922	95% KM USL	5123

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2248	SD	1219
95% UTL95% Coverage	5237	95% UPL (t)	4426
90% Percentile (z)	3809	95% Percentile (z)	4252
99% Percentile (z)	5083	95% USL	5299

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.864	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.741	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.22	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.216	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	6.678	k star (bias corrected MLE)	5.467
Theta hat (MLE)	371.3	Theta star (bias corrected MLE)	453.5
nu hat (MLE)	213.7	nu star (bias corrected)	175
MLE Mean (bias corrected)	2479		
MLE Sd (bias corrected)	1060	95% Percentile of Chisquare (2kstar)	19.59

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	509.2	Mean	2260
Maximum	4940	Median	1925
SD	1198	CV	0.53
k hat (MLE)	3.455	k star (bias corrected MLE)	2.916
Theta hat (MLE)	654.3	Theta star (bias corrected MLE)	775.2
nu hat (MLE)	124.4	nu star (bias corrected)	105
MLE Mean (bias corrected)	2260	MLE Sd (bias corrected)	1324
95% Percentile of Chisquare (2kstar)	12.34	90% Percentile	4035
95% Percentile	4783	99% Percentile	6406

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	6469	6823	95% Approx. Gamma UPL	4935	5081
95% Gamma USL	6598	6973			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2281	SD (KM)	1135
Variance (KM)	1288827	SE of Mean (KM)	276.4
k hat (KM)	4.035	k star (KM)	3.4
nu hat (KM)	145.3	nu star (KM)	122.4
theta hat (KM)	565.1	theta star (KM)	670.8
80% gamma percentile (KM)	3205	90% gamma percentile (KM)	3939
95% gamma percentile (KM)	4620	99% gamma percentile (KM)	6086

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5943	6162	95% Approx. Gamma UPL	4634	4718
95% KM Gamma Percentile	4382	4445	95% Gamma USL	6052	6285

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.907	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.906	Detected Data appear Lognormal at 10% Significance Level	

Lilliefors Test Statistic	0.201	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.196	Data Not Lognormal at 10% Significance Level	

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2308	Mean in Log Scale	7.639
SD in Original Scale	1131	SD in Log Scale	0.468
95% UTL95% Coverage	6556	95% BCA UTL95% Coverage	4940
95% Bootstrap (%) UTL95% Coverage	4940	95% UPL (t)	4799
90% Percentile (z)	3787	95% Percentile (z)	4490
99% Percentile (z)	6178	95% USL	6714

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	7.605	95% KM UTL (Lognormal)95% Coverage	7185
KM SD of Logged Data	0.519	95% KM UPL (Lognormal)	5084
95% KM Percentile Lognormal (z)	4722	95% KM USL (Lognormal)	7378

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2248	Mean in Log Scale	7.542
SD in Original Scale	1219	SD in Log Scale	0.682
95% UTL95% Coverage	10050	95% UPL (t)	6382
90% Percentile (z)	4520	95% Percentile (z)	5791
99% Percentile (z)	9218	95% USL	10406

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	4940
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	4940
95% USL	4940	95% KM Chebyshev UPL	7365

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sulfate_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	3.83	First Quartile	9.303

Second Largest	28.5	Median	12.45
Maximum	35.4	Third Quartile	20.2
Mean	15.66	SD	8.692
Coefficient of Variation	0.555	Skewness	0.793
Mean of logged Data	2.597	SD of logged Data	0.591

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	36.98	90% Percentile (z)	26.8
	95% UPL (t)	31.19	95% Percentile (z)	29.95
	95% USL	37.42	99% Percentile (z)	35.88

Gamma GOF Test

A-D Test Statistic	0.206	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.136	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.205	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.406	k star (bias corrected MLE)	2.876
Theta hat (MLE)	4.596	Theta star (bias corrected MLE)	5.444
nu hat (MLE)	122.6	nu star (bias corrected)	103.5
MLE Mean (bias corrected)	15.66	MLE Sd (bias corrected)	9.233

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	34.35	90% Percentile	28.03
95% Hawkins Wixley (HW) Approx. Gamma UPL	35.13	95% Percentile	33.26
95% WH Approx. Gamma UTL with 95% Coverage	45.12	99% Percentile	44.62
95% HW Approx. Gamma UTL with 95% Coverage	47.19		
95% WH USL	46.03	95% HW USL	48.23

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.978	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.111	**Lilliefors Lognormal GOF Test**

10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	57.16	90% Percentile (z)	28.61
	95% UPL (t)	38.58	95% Percentile (z)	35.46
	95% USL	58.91	99% Percentile (z)	53.04

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with 95% Coverage	35.4
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	35.4	95% BCA Bootstrap UTL with 95% Coverage	35.4
	95% UPL	35.4	90% Percentile	27.24
	90% Chebyshev UPL	42.45	95% Percentile	29.54
	95% Chebyshev UPL	54.58	99% Percentile	34.23
	95% USL	35.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	15		
Number of Detects	5	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	11
Minimum Detect	3.3	Minimum Non-Detect	0.3
Maximum Detect	79.6	Maximum Non-Detect	1.7
Variance Detected	1127	Percent Non-Detects	72.22%
Mean Detected	19.58	SD Detected	33.57
Mean of Detected Logged Data	2.074	SD of Detected Logged Data	1.305

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.579	**Shapiro Wilk GOF Test**	

1% Shapiro Wilk Critical Value	0.686	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.457	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.396	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	5.656	KM SD	18.03
95% UTL95% Coverage	49.87	95% KM UPL (t)	37.87
90% KM Percentile (z)	28.76	95% KM Percentile (z)	35.31
99% KM Percentile (z)	47.59	95% KM USL	50.79

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	5.789	SD	18.51
95% UTL95% Coverage	51.19	95% UPL (t)	38.87
90% Percentile (z)	29.51	95% Percentile (z)	36.23
99% Percentile (z)	48.85	95% USL	52.14

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.046	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.702	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.448	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.368	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.675	k star (bias corrected MLE)	0.403
Theta hat (MLE)	29.02	Theta star (bias corrected MLE)	48.56
nu hat (MLE)	6.747	nu star (bias corrected)	4.032
MLE Mean (bias corrected)	19.58		
MLE Sd (bias corrected)	30.83	95% Percentile of Chisquare (2kstar)	3.341

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	5.446
Maximum	79.6	Median	0.01
SD	18.61	CV	3.418
k hat (MLE)	0.17	k star (bias corrected MLE)	0.179
Theta hat (MLE)	32.08	Theta star (bias corrected MLE)	30.51
nu hat (MLE)	6.112	nu star (bias corrected)	6.427
MLE Mean (bias corrected)	5.446	MLE Sd (bias corrected)	12.89

95% Percentile of Chisquare (2kstar)	1.892	90% Percentile	16.42
95% Percentile	28.87	99% Percentile	63.81

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	39.23	42.09	95% Approx. Gamma UPL	19.3	17.68
95% Gamma USL	41.16	44.66			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.656	SD (KM)	18.03
Variance (KM)	324.9	SE of Mean (KM)	4.75
k hat (KM)	0.0984	k star (KM)	0.119
nu hat (KM)	3.544	nu star (KM)	4.286
theta hat (KM)	57.46	theta star (KM)	47.5
80% gamma percentile (KM)	4.916	90% gamma percentile (KM)	15.99
95% gamma percentile (KM)	32.3	99% gamma percentile (KM)	82.2

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	34.25	33.24	95% Approx. Gamma UPL	18.86	16.9
95% KM Gamma Percentile	16.32	14.39	95% Gamma USL	35.69	34.86

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.386	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.319	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	5.503	Mean in Log Scale	-1.305
SD in Original Scale	18.6	SD in Log Scale	2.312
95% UTL95% Coverage	78.8	95% BCA UTL95% Coverage	79.6
95% Bootstrap (%) UTL95% Coverage	79.6	95% UPL (t)	16.91
90% Percentile (z)	5.25	95% Percentile (z)	12.16
99% Percentile (z)	58.8	95% USL	88.67

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.293	95% KM UTL (Lognormal)95% Coverage	37.02
KM SD of Logged Data	1.592	95% KM UPL (Lognormal)	12.83
95% KM Percentile Lognormal (z)	10.23	95% KM USL (Lognormal)	40.15

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	5.789	Mean in Log Scale	-0.0191

SD in Original Scale	18.51	SD in Log Scale	1.534
95% UTL95% Coverage	42.25	95% UPL (t)	15.22
90% Percentile (z)	7.006	95% Percentile (z)	12.23
99% Percentile (z)	34.79	95% USL	45.69

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	79.6
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	79.6
95% USL	79.6	95% KM Chebyshev UPL	86.38

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	15		
Number of Detects	5	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	11
Minimum Detect	3.3	Minimum Non-Detect	0.3
Maximum Detect	79.6	Maximum Non-Detect	1.7
Variance Detected	1127	Percent Non-Detects	72.22%
Mean Detected	19.58	SD Detected	33.57
Mean of Detected Logged Data	2.074	SD of Detected Logged Data	1.305

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.579	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.457	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	5.656	KM SD	18.03
95% UTL95% Coverage	49.87	95% KM UPL (t)	37.87
90% KM Percentile (z)	28.76	95% KM Percentile (z)	35.31
99% KM Percentile (z)	47.59	95% KM USL	50.79

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	5.789	SD	18.51
95% UTL95% Coverage	51.19	95% UPL (t)	38.87
90% Percentile (z)	29.51	95% Percentile (z)	36.23
99% Percentile (z)	48.85	95% USL	52.14

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.046	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.702	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.448	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.368	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.675	k star (bias corrected MLE)	0.403
Theta hat (MLE)	29.02	Theta star (bias corrected MLE)	48.56
nu hat (MLE)	6.747	nu star (bias corrected)	4.032
MLE Mean (bias corrected)	19.58		
MLE Sd (bias corrected)	30.83	95% Percentile of Chisquare (2kstar)	3.341

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	5.446
Maximum	79.6	Median	0.01
SD	18.61	CV	3.418
k hat (MLE)	0.17	k star (bias corrected MLE)	0.179
Theta hat (MLE)	32.08	Theta star (bias corrected MLE)	30.51
nu hat (MLE)	6.112	nu star (bias corrected)	6.427
MLE Mean (bias corrected)	5.446	MLE Sd (bias corrected)	12.89
95% Percentile of Chisquare (2kstar)	1.892	90% Percentile	16.42
95% Percentile	28.87	99% Percentile	63.81

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	39.23	42.09	95% Approx. Gamma UPL	19.3	17.68

95% Gamma USL	41.16	44.66

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.656	SD (KM)	18.03
Variance (KM)	324.9	SE of Mean (KM)	4.75
k hat (KM)	0.0984	k star (KM)	0.119
nu hat (KM)	3.544	nu star (KM)	4.286
theta hat (KM)	57.46	theta star (KM)	47.5
80% gamma percentile (KM)	4.916	90% gamma percentile (KM)	15.99
95% gamma percentile (KM)	32.3	99% gamma percentile (KM)	82.2

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	34.25	33.24	95% Approx. Gamma UPL	18.86	16.9
95% KM Gamma Percentile	16.32	14.39	95% Gamma USL	35.69	34.86

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.386	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.319	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	5.503	Mean in Log Scale	-1.305
SD in Original Scale	18.6	SD in Log Scale	2.312
95% UTL95% Coverage	78.8	95% BCA UTL95% Coverage	79.6
95% Bootstrap (%) UTL95% Coverage	79.6	95% UPL (t)	16.91
90% Percentile (z)	5.25	95% Percentile (z)	12.16
99% Percentile (z)	58.8	95% USL	88.67

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.293	95% KM UTL (Lognormal)95% Coverage	37.02
KM SD of Logged Data	1.592	95% KM UPL (Lognormal)	12.83
95% KM Percentile Lognormal (z)	10.23	95% KM USL (Lognormal)	40.15

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	5.789	Mean in Log Scale	-0.0191
SD in Original Scale	18.51	SD in Log Scale	1.534
95% UTL95% Coverage	42.25	95% UPL (t)	15.22
90% Percentile (z)	7.006	95% Percentile (z)	12.23
99% Percentile (z)	34.79	95% USL	45.69

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	79.6
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	79.6
95% USL	79.6	95% KM Chebyshev UPL	86.38

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	15		
Number of Detects	5	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	11
Minimum Detect	3.3	Minimum Non-Detect	0.3
Maximum Detect	79.6	Maximum Non-Detect	1.7
Variance Detected	1127	Percent Non-Detects	72.22%
Mean Detected	19.58	SD Detected	33.57
Mean of Detected Logged Data	2.074	SD of Detected Logged Data	1.305

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.579	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Data Not Normal at 1% Significance Level	
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90% KM Percentile (z)	28.76	95% KM Percentile (z)	35.31
99% KM Percentile (z)	47.59	95% KM USL	50.79

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	5.789	SD	18.51
95% UTL95% Coverage	51.19	95% UPL (t)	38.87
90% Percentile (z)	29.51	95% Percentile (z)	36.23
99% Percentile (z)	48.85	95% USL	52.14

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k hat (MLE)	0.675	k star (bias corrected MLE)	0.403
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MLE Mean (bias corrected)	19.58		
MLE Sd (bias corrected)	30.83	95% Percentile of Chisquare (2kstar)	3.341

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

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MLE Mean (bias corrected)	5.446	MLE Sd (bias corrected)	12.89
95% Percentile of Chisquare (2kstar)	1.892	90% Percentile	16.42
95% Percentile	28.87	99% Percentile	63.81

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Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	39.23	42.09	95% Approx. Gamma UPL	19.3	17.68
95% Gamma USL	41.16	44.66			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.656	SD (KM)	18.03
Variance (KM)	324.9	SE of Mean (KM)	4.75
k hat (KM)	0.0984	k star (KM)	0.119

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Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

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95% KM Gamma Percentile	16.32	14.39	95% Gamma USL	35.69	34.86

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Data Not Lognormal at 10% Significance Level
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10% Lilliefors Critical Value	0.319	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	5.503	Mean in Log Scale	-1.305
SD in Original Scale	18.6	SD in Log Scale	2.312
95% UTL95% Coverage	78.8	95% BCA UTL95% Coverage	79.6
95% Bootstrap (%) UTL95% Coverage	79.6	95% UPL (t)	16.91
90% Percentile (z)	5.25	95% Percentile (z)	12.16
99% Percentile (z)	58.8	95% USL	88.67

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.293	95% KM UTL (Lognormal)95% Coverage	37.02
KM SD of Logged Data	1.592	95% KM UPL (Lognormal)	12.83
95% KM Percentile Lognormal (z)	10.23	95% KM USL (Lognormal)	40.15

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	5.789	Mean in Log Scale	-0.0191
SD in Original Scale	18.51	SD in Log Scale	1.534
95% UTL95% Coverage	42.25	95% UPL (t)	15.22
90% Percentile (z)	7.006	95% Percentile (z)	12.23
99% Percentile (z)	34.79	95% USL	45.69

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	79.6
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603

Approximate Sample Size needed to achieve specified CC	59	95% UPL	79.6
95% USL	79.6	95% KM Chebyshev UPL	86.38

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0025	First Quartile	0.00755
Second Largest	0.061	Median	0.012
Maximum	1.1	Third Quartile	0.042
Mean	0.0808	SD	0.255
Coefficient of Variation	3.158	Skewness	4.203
Mean of logged Data	-4.042	SD of logged Data	1.382

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.31	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.475	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.706	90% Percentile (z)	0.408
	95% UPL (t)	0.537	95% Percentile (z)	0.5
	95% USL	0.719	99% Percentile (z)	0.674

Gamma GOF Test

A-D Test Statistic	2.602	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.816	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.31	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.217	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.427	k star (bias corrected MLE)	0.393
Theta hat (MLE)	0.189	Theta star (bias corrected MLE)	0.206

nu hat (MLE)	15.36	nu star (bias corrected)	14.13
MLE Mean (bias corrected)	0.0808	MLE Sd (bias corrected)	0.129

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.278	90% Percentile	0.229
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.252	95% Percentile	0.338
95% WH Approx. Gamma UTL with 95% Coverage	0.485	99% Percentile	0.612
95% HW Approx. Gamma UTL with 95% Coverage	0.468		
95% WH USL	0.504	95% HW USL	0.489

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.875	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.164	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.521	90% Percentile (z)	0.103
95% UPL (t)	0.208	95% Percentile (z)	0.171
95% USL	0.56	99% Percentile (z)	0.438

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	1.1
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1.1	95% BCA Bootstrap UTL with 95% Coverage	1.1
95% UPL	1.1	90% Percentile	0.0568
90% Chebyshev UPL	0.867	95% Percentile	0.217
95% Chebyshev UPL	1.223	99% Percentile	0.923
95% USL	1.1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15

Minimum	0.0019	First Quartile	0.00455
Second Largest	0.038	Median	0.0078
Maximum	0.5	Third Quartile	0.0185
Mean	0.0386	SD	0.116
Coefficient of Variation	2.997	Skewness	4.187
Mean of logged Data	-4.587	SD of logged Data	1.265

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.319	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.446	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.322	90% Percentile (z)	0.187
95% UPL (t)	0.245	95% Percentile (z)	0.229
95% USL	0.328	99% Percentile (z)	0.308

Gamma GOF Test

A-D Test Statistic	2.723	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.804	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.306	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.216	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.48	k star (bias corrected MLE)	0.437
Theta hat (MLE)	0.0804	Theta star (bias corrected MLE)	0.0883
nu hat (MLE)	17.28	nu star (bias corrected)	15.73
MLE Mean (bias corrected)	0.0386	MLE Sd (bias corrected)	0.0584

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.132	90% Percentile	0.107
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.12	95% Percentile	0.155
95% WH Approx. Gamma UTL with 95% Coverage	0.226	99% Percentile	0.276
95% HW Approx. Gamma UTL with 95% Coverage	0.218		
95% WH USL	0.235	95% HW USL	0.227

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.844	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level

Lilliefors Test Statistic	0.198	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.227	90% Percentile (z)	0.0515
	95% UPL (t)	0.0976	95% Percentile (z)	0.0815
	95% USL	0.242	99% Percentile (z)	0.193

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	0.5
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.5	95% BCA Bootstrap UTL with	95% Coverage	0.5
	95% UPL	0.5		90% Percentile	0.031
	90% Chebyshev UPL	0.395		95% Percentile	0.107
	95% Chebyshev UPL	0.556		99% Percentile	0.421
	95% USL	0.5			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0025	First Quartile	0.00755
Second Largest	0.061	Median	0.012
Maximum	1.1	Third Quartile	0.042
Mean	0.0808	SD	0.255
Coefficient of Variation	3.158	Skewness	4.203
Mean of logged Data	-4.042	SD of logged Data	1.382

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

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1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.706	90% Percentile (z)	0.408
	95% UPL (t)	0.537	95% Percentile (z)	0.5
	95% USL	0.719	99% Percentile (z)	0.674

Gamma GOF Test

A-D Test Statistic	2.602	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.816	Data Not Gamma Distributed at 5% Significance Level
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95% UTL with	95% Coverage	0.521	90% Percentile (z)	0.103
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	95% USL	0.56	99% Percentile (z)	0.438

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	1.1
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1.1	95% BCA Bootstrap UTL with 95% Coverage	1.1
95% UPL	1.1	90% Percentile	0.0568
90% Chebyshev UPL	0.867	95% Percentile	0.217
95% Chebyshev UPL	1.223	99% Percentile	0.923
95% USL	1.1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0025	First Quartile	0.00755
Second Largest	0.061	Median	0.012
Maximum	1.1	Third Quartile	0.042
Mean	0.0808	SD	0.255
Coefficient of Variation	3.158	Skewness	4.203
Mean of logged Data	-4.042	SD of logged Data	1.382

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.31	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.475	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.706	90% Percentile (z)	0.408
95% UPL (t)	0.537	95% Percentile (z)	0.5
95% USL	0.719	99% Percentile (z)	0.674

Gamma GOF Test

A-D Test Statistic	2.602	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.816	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.31	**Kolmogorov-Smirnov Gamma GOF Test**

5% K-S Critical Value	0.217	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.427	k star (bias corrected MLE)	0.393
Theta hat (MLE)	0.189	Theta star (bias corrected MLE)	0.206
nu hat (MLE)	15.36	nu star (bias corrected)	14.13
MLE Mean (bias corrected)	0.0808	MLE Sd (bias corrected)	0.129

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.278	90% Percentile	0.229
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.252	95% Percentile	0.338
95% WH Approx. Gamma UTL with 95% Coverage	0.485	99% Percentile	0.612
95% HW Approx. Gamma UTL with 95% Coverage	0.468		
95% WH USL	0.504	95% HW USL	0.489

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.875	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.164	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.521	90% Percentile (z)	0.103
95% UPL (t)	0.208	95% Percentile (z)	0.171
95% USL	0.56	99% Percentile (z)	0.438

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	1.1
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1.1	95% BCA Bootstrap UTL with 95% Coverage	1.1
95% UPL	1.1	90% Percentile	0.0568
90% Chebyshev UPL	0.867	95% Percentile	0.217
95% Chebyshev UPL	1.223	99% Percentile	0.923
95% USL	1.1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data

represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	0.0019	First Quartile	0.00563
Second Largest	0.046	Median	0.009
Maximum	0.8	Third Quartile	0.0323
Mean	0.0595	SD	0.185
Coefficient of Variation	3.117	Skewness	4.199
Mean of logged Data	-4.317	SD of logged Data	1.377

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.313	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.473	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.514	90% Percentile (z)	0.297
	95% UPL (t)	0.391	95% Percentile (z)	0.364
	95% USL	0.524	99% Percentile (z)	0.491

Gamma GOF Test

A-D Test Statistic	2.541	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.814	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.307	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.217	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.434	k star (bias corrected MLE)	0.399
Theta hat (MLE)	0.137	Theta star (bias corrected MLE)	0.149
nu hat (MLE)	15.64	nu star (bias corrected)	14.36
MLE Mean (bias corrected)	0.0595	MLE Sd (bias corrected)	0.0942

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.205	90% Percentile	0.168
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.187	95% Percentile	0.247
95% WH Approx. Gamma UTL with 95% Coverage	0.357	99% Percentile	0.447

95% HW Approx. Gamma UTL with	95% Coverage	0.346			
	95% WH USL	0.371		95% HW USL	0.362

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.877	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.162	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.391		90% Percentile (z)	0.0779
	95% UPL (t)	0.156		95% Percentile (z)	0.128
	95% USL	0.419		99% Percentile (z)	0.328

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	18	95% UTL with	95% Coverage	0.8
	Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.8	95% BCA Bootstrap UTL with	95% Coverage	0.8
	95% UPL	0.8		90% Percentile	0.0439
	90% Chebyshev UPL	0.631		95% Percentile	0.159
	95% Chebyshev UPL	0.89		99% Percentile	0.672
	95% USL	0.8			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Table C3-9
ProUCL Output for Porewater BTVs and BTV HQs, Approach F
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 9/28/2023 10:29:37 AM
From File	porewater_utl_input_ph3_fb_outlier.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

concDL (alkalinity_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
Minimum	40	First Quartile	48.25
Second Largest	104	Median	54.5
Maximum	110	Third Quartile	71.25
Mean	64.5	SD	22.39
Coefficient of Variation	0.347	Skewness	1.015
Mean of logged Data	4.116	SD of logged Data	0.319

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.838	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.227	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	119.4	90% Percentile (z)	93.19
	95% UPL (t)	104.5	95% Percentile (z)	101.3
	95% USL	120.6	99% Percentile (z)	116.6

Gamma GOF Test

A-D Test Statistic	0.986	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.228	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10	k star (bias corrected MLE)	8.372

Theta hat (MLE)	6.449	Theta star (bias corrected MLE)	7.704
nu hat (MLE)	360.1	nu star (bias corrected)	301.4
MLE Mean (bias corrected)	64.5	MLE Sd (bias corrected)	22.29

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	106.7	90% Percentile	94.21
95% Hawkins Wixley (HW) Approx. Gamma UPL	107.1	95% Percentile	105
95% WH Approx. Gamma UTL with 95% Coverage	127.4	99% Percentile	127.3
95% HW Approx. Gamma UTL with 95% Coverage	128.9		
95% WH USL	129.1	95% HW USL	130.7

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.891	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.218	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	134.1	90% Percentile (z)	92.28
95% UPL (t)	108.4	95% Percentile (z)	103.6
95% USL	136.3	99% Percentile (z)	128.8

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	110
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	110	95% BCA Bootstrap UTL with 95% Coverage	110
95% UPL	110	90% Percentile	99.8
90% Chebyshev UPL	133.5	95% Percentile	104.9
95% Chebyshev UPL	164.8	99% Percentile	109
95% USL	110		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	11		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	7
Minimum Detect	49.5	Minimum Non-Detect	0.8
Maximum Detect	66.9	Maximum Non-Detect	18.2
Variance Detected	52.91	Percent Non-Detects	76.47%
Mean Detected	56.93	SD Detected	7.274
Mean of Detected Logged Data	4.036	SD of Detected Logged Data	0.125

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.284	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	14.01	KM SD	24
95% UTL95% Coverage	73.68	95% KM UPL (t)	57.13
90% KM Percentile (z)	44.77	95% KM Percentile (z)	53.49
99% KM Percentile (z)	69.84	95% KM USL	73.41

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	15.14	SD	24.27
95% UTL95% Coverage	75.47	95% UPL (t)	58.74
90% Percentile (z)	46.24	95% Percentile (z)	55.06
99% Percentile (z)	71.59	95% USL	75.2

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.307	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.656	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.276	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	84.42	k star (bias corrected MLE)	21.27
Theta hat (MLE)	0.674	Theta star (bias corrected MLE)	2.676
nu hat (MLE)	675.3	nu star (bias corrected)	170.2
MLE Mean (bias corrected)	56.93		

MLE Sd (bias corrected)	12.34	95% Percentile of Chisquare (2kstar)	58.76

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	8.56	Mean	33.43
Maximum	66.9	Median	26.62
SD	15.43	CV	0.461
k hat (MLE)	4.861	k star (bias corrected MLE)	4.042
Theta hat (MLE)	6.877	Theta star (bias corrected MLE)	8.27
nu hat (MLE)	165.3	nu star (bias corrected)	137.4
MLE Mean (bias corrected)	33.43	MLE Sd (bias corrected)	16.63
95% Percentile of Chisquare (2kstar)	15.63	90% Percentile	55.71
95% Percentile	64.62	99% Percentile	83.63

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	84.85	88.09	95% Approx. Gamma UPL	66.36	67.65
95% Gamma USL	84.53	87.73			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	14.01	SD (KM)	24
Variance (KM)	576.1	SE of Mean (KM)	6.722
k hat (KM)	0.34	k star (KM)	0.32
nu hat (KM)	11.58	nu star (KM)	10.87
theta hat (KM)	41.13	theta star (KM)	43.82
80% gamma percentile (KM)	21.79	90% gamma percentile (KM)	40.98
95% gamma percentile (KM)	62.77	99% gamma percentile (KM)	119

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	103.2	113.9	95% Approx. Gamma UPL	56.5	56.4
95% KM Gamma Percentile	48.61	47.46	95% Gamma USL	102.3	112.7

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.951	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.266	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	38.36	Mean in Log Scale	3.607
SD in Original Scale	11.86	SD in Log Scale	0.285
95% UTL95% Coverage	74.78	95% BCA UTL95% Coverage	66.9
95% Bootstrap (%) UTL95% Coverage	66.9	95% UPL (t)	61.45
90% Percentile (z)	53.08	95% Percentile (z)	58.86
99% Percentile (z)	71.46	95% USL	74.54

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.779	95% KM UTL (Lognormal)95% Coverage	194.8
KM SD of Logged Data	1.807	95% KM UPL (Lognormal)	56.03
95% KM Percentile Lognormal (z)	42.6	95% KM USL (Lognormal)	190.9

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	15.14	Mean in Log Scale	0.944
SD in Original Scale	24.27	SD in Log Scale	2.072
95% UTL95% Coverage	443.7	95% UPL (t)	106.3
90% Percentile (z)	36.58	95% Percentile (z)	77.66
99% Percentile (z)	318.7	95% USL	433.5

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	66.9
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	66.9
95% USL	66.9	95% KM Chebyshev UPL	121.7

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	11		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	7
Minimum Detect	49.5	Minimum Non-Detect	0.8
Maximum Detect	66.9	Maximum Non-Detect	18.2

Variance Detected	52.91	Percent Non-Detects	76.47%
Mean Detected	56.93	SD Detected	7.274
Mean of Detected Logged Data	4.036	SD of Detected Logged Data	0.125

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.284	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	14.01	KM SD	24
95% UTL95% Coverage	73.68	95% KM UPL (t)	57.13
90% KM Percentile (z)	44.77	95% KM Percentile (z)	53.49
99% KM Percentile (z)	69.84	95% KM USL	73.41

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	15.14	SD	24.27
95% UTL95% Coverage	75.47	95% UPL (t)	58.74
90% Percentile (z)	46.24	95% Percentile (z)	55.06
99% Percentile (z)	71.59	95% USL	75.2

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.307	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.656	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.276	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	84.42	k star (bias corrected MLE)	21.27
Theta hat (MLE)	0.674	Theta star (bias corrected MLE)	2.676
nu hat (MLE)	675.3	nu star (bias corrected)	170.2
MLE Mean (bias corrected)	56.93		
MLE Sd (bias corrected)	12.34	95% Percentile of Chisquare (2kstar)	58.76

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	8.56	Mean	33.43
Maximum	66.9	Median	26.62
SD	15.43	CV	0.461
k hat (MLE)	4.861	k star (bias corrected MLE)	4.042
Theta hat (MLE)	6.877	Theta star (bias corrected MLE)	8.27
nu hat (MLE)	165.3	nu star (bias corrected)	137.4
MLE Mean (bias corrected)	33.43	MLE Sd (bias corrected)	16.63
95% Percentile of Chisquare (2kstar)	15.63	90% Percentile	55.71
95% Percentile	64.62	99% Percentile	83.63

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	84.85	88.09	95% Approx. Gamma UPL	66.36	67.65
95% Gamma USL	84.53	87.73			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	14.01	SD (KM)	24
Variance (KM)	576.1	SE of Mean (KM)	6.722
k hat (KM)	0.34	k star (KM)	0.32
nu hat (KM)	11.58	nu star (KM)	10.87
theta hat (KM)	41.13	theta star (KM)	43.82
80% gamma percentile (KM)	21.79	90% gamma percentile (KM)	40.98
95% gamma percentile (KM)	62.77	99% gamma percentile (KM)	119

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	103.2	113.9	95% Approx. Gamma UPL	56.5	56.4
95% KM Gamma Percentile	48.61	47.46	95% Gamma USL	102.3	112.7

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.951	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.266	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	38.36	Mean in Log Scale	3.607
SD in Original Scale	11.86	SD in Log Scale	0.285
95% UTL95% Coverage	74.78	95% BCA UTL95% Coverage	66.9
95% Bootstrap (%) UTL95% Coverage	66.9	95% UPL (t)	61.45
90% Percentile (z)	53.08	95% Percentile (z)	58.86

99% Percentile (z)	71.46	95% USL	74.54

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.779	95% KM UTL (Lognormal)95% Coverage	194.8
KM SD of Logged Data	1.807	95% KM UPL (Lognormal)	56.03
95% KM Percentile Lognormal (z)	42.6	95% KM USL (Lognormal)	190.9

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	15.14	Mean in Log Scale	0.944
SD in Original Scale	24.27	SD in Log Scale	2.072
95% UTL95% Coverage	443.7	95% UPL (t)	106.3
90% Percentile (z)	36.58	95% Percentile (z)	77.66
99% Percentile (z)	318.7	95% USL	433.5

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	66.9
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	66.9
95% USL	66.9	95% KM Chebyshev UPL	121.7

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	11		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	4	Number of Distinct Non-Detects	7
Minimum Detect	49.5	Minimum Non-Detect	0.8
Maximum Detect	66.9	Maximum Non-Detect	18.2
Variance Detected	52.91	Percent Non-Detects	76.47%
Mean Detected	56.93	SD Detected	7.274
Mean of Detected Logged Data	4.036	SD of Detected Logged Data	0.125

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.284	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	14.01	KM SD	24
95% UTL95% Coverage	73.68	95% KM UPL (t)	57.13
90% KM Percentile (z)	44.77	95% KM Percentile (z)	53.49
99% KM Percentile (z)	69.84	95% KM USL	73.41

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	15.14	SD	24.27
95% UTL95% Coverage	75.47	95% UPL (t)	58.74
90% Percentile (z)	46.24	95% Percentile (z)	55.06
99% Percentile (z)	71.59	95% USL	75.2

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.307	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.656	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.276	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	84.42	k star (bias corrected MLE)	21.27
Theta hat (MLE)	0.674	Theta star (bias corrected MLE)	2.676
nu hat (MLE)	675.3	nu star (bias corrected)	170.2
MLE Mean (bias corrected)	56.93		
MLE Sd (bias corrected)	12.34	95% Percentile of Chisquare (2kstar)	58.76

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	8.56	Mean	33.43
Maximum	66.9	Median	26.62
SD	15.43	CV	0.461
k hat (MLE)	4.861	k star (bias corrected MLE)	4.042

Theta hat (MLE)	6.877	Theta star (bias corrected MLE)	8.27
nu hat (MLE)	165.3	nu star (bias corrected)	137.4
MLE Mean (bias corrected)	33.43	MLE Sd (bias corrected)	16.63
95% Percentile of Chisquare (2kstar)	15.63	90% Percentile	55.71
95% Percentile	64.62	99% Percentile	83.63

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	84.85	88.09	95% Approx. Gamma UPL	66.36	67.65
95% Gamma USL	84.53	87.73			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	14.01	SD (KM)	24
Variance (KM)	576.1	SE of Mean (KM)	6.722
k hat (KM)	0.34	k star (KM)	0.32
nu hat (KM)	11.58	nu star (KM)	10.87
theta hat (KM)	41.13	theta star (KM)	43.82
80% gamma percentile (KM)	21.79	90% gamma percentile (KM)	40.98
95% gamma percentile (KM)	62.77	99% gamma percentile (KM)	119

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	103.2	113.9	95% Approx. Gamma UPL	56.5	56.4
95% KM Gamma Percentile	48.61	47.46	95% Gamma USL	102.3	112.7

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.951	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.266	**Lilliefors GOF Test**
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Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	38.36	Mean in Log Scale	3.607
SD in Original Scale	11.86	SD in Log Scale	0.285
95% UTL95% Coverage	74.78	95% BCA UTL95% Coverage	66.9
95% Bootstrap (%) UTL95% Coverage	66.9	95% UPL (t)	61.45
90% Percentile (z)	53.08	95% Percentile (z)	58.86
99% Percentile (z)	71.46	95% USL	74.54

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.779	95% KM UTL (Lognormal)95% Coverage	194.8
KM SD of Logged Data	1.807	95% KM UPL (Lognormal)	56.03
95% KM Percentile Lognormal (z)	42.6	95% KM USL (Lognormal)	190.9

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	15.14	Mean in Log Scale	0.944
SD in Original Scale	24.27	SD in Log Scale	2.072
95% UTL95% Coverage	443.7	95% UPL (t)	106.3
90% Percentile (z)	36.58	95% Percentile (z)	77.66
99% Percentile (z)	318.7	95% USL	433.5

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	66.9
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	66.9
95% USL	66.9	95% KM Chebyshev UPL	121.7

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0015	First Quartile	0.003
Second Largest	0.21	Median	0.0062
Maximum	0.22	Third Quartile	0.11
Mean	0.0538	SD	0.0777
Coefficient of Variation	1.443	Skewness	1.305
Mean of logged Data	-4.29	SD of logged Data	1.812

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.331	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.247	90% Percentile (z)	0.153
	95% UPL (t)	0.193	95% Percentile (z)	0.182
	95% USL	0.246	99% Percentile (z)	0.234

Gamma GOF Test

A-D Test Statistic	1.325	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.805	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.298	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.222	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.469	k star (bias corrected MLE)	0.425
Theta hat (MLE)	0.115	Theta star (bias corrected MLE)	0.127
nu hat (MLE)	15.94	nu star (bias corrected)	14.46
MLE Mean (bias corrected)	0.0538	MLE Sd (bias corrected)	0.0825

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.228	90% Percentile	0.15
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.243	95% Percentile	0.219
95% WH Approx. Gamma UTL with	95% Coverage	0.398	99% Percentile	0.39
95% HW Approx. Gamma UTL with	95% Coverage	0.466		
	95% WH USL	0.395	95% HW USL	0.461

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.866	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.245	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.239	90% Percentile (z)	0.14
	95% UPL (t)	0.355	95% Percentile (z)	0.27
	95% USL	1.214	99% Percentile (z)	0.928

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	0.22
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.22	95% BCA Bootstrap UTL with 95% Coverage	0.22

95% UPL	0.22	90% Percentile	0.174
90% Chebyshev UPL	0.294	95% Percentile	0.212
95% Chebyshev UPL	0.402	99% Percentile	0.218
95% USL	0.22		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	10
Minimum	2.0000E-4	First Quartile	2.0000E-4
Second Largest	0.014	Median	5.6000E-4
Maximum	0.016	Third Quartile	0.0044
Mean	0.00409	SD	0.00574
Coefficient of Variation	1.405	Skewness	1.24
Mean of logged Data	-6.836	SD of logged Data	1.807

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.703	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.313	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0184	90% Percentile (z)	0.0115
	95% UPL (t)	0.0144	95% Percentile (z)	0.0135
	95% USL	0.0183	99% Percentile (z)	0.0175

Gamma GOF Test

A-D Test Statistic	1.514	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.803	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.265	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.222	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.478	k star (bias corrected MLE)	0.433
Theta hat (MLE)	0.00855	Theta star (bias corrected MLE)	0.00944
nu hat (MLE)	16.27	nu star (bias corrected)	14.73
MLE Mean (bias corrected)	0.00409	MLE Sd (bias corrected)	0.00621

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0173	90% Percentile	0.0114
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0185	95% Percentile	0.0165
95% WH Approx. Gamma UTL with 95% Coverage	0.0301	99% Percentile	0.0293
95% HW Approx. Gamma UTL with 95% Coverage	0.0354		
95% WH USL	0.0299	95% HW USL	0.0351

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.8	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.236	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0958	90% Percentile (z)	0.0109
95% UPL (t)	0.0276	95% Percentile (z)	0.021
95% USL	0.0939	99% Percentile (z)	0.0718

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.016
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.016	95% BCA Bootstrap UTL with 95% Coverage	0.016
95% UPL	0.016	90% Percentile	0.0134
90% Chebyshev UPL	0.0218	95% Percentile	0.0144
95% Chebyshev UPL	0.0299	99% Percentile	0.0157
95% USL	0.016		

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Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (aluminum_ug/l_hq_signif_bmi_awqc)

Table C3-9
ProUCL Output for Porewater BTVs and BTV HQs, Approach F
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0015	First Quartile	0.003
Second Largest	0.21	Median	0.0062
Maximum	0.22	Third Quartile	0.11
Mean	0.0538	SD	0.0777
Coefficient of Variation	1.443	Skewness	1.305
Mean of logged Data	-4.29	SD of logged Data	1.812

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.331	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.247	90% Percentile (z)	0.153
	95% UPL (t)	0.193	95% Percentile (z)	0.182
	95% USL	0.246	99% Percentile (z)	0.234

Gamma GOF Test

A-D Test Statistic	1.325	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.805	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.298	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.222	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.469	k star (bias corrected MLE)	0.425
Theta hat (MLE)	0.115	Theta star (bias corrected MLE)	0.127
nu hat (MLE)	15.94	nu star (bias corrected)	14.46
MLE Mean (bias corrected)	0.0538	MLE Sd (bias corrected)	0.0825

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.228	90% Percentile	0.15
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.243	95% Percentile	0.219
95% WH Approx. Gamma UTL with	95% Coverage	0.398	99% Percentile	0.39
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10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.239	90% Percentile (z)		0.14
	95% UPL (t)	0.355	95% Percentile (z)		0.27
	95% USL	1.214	99% Percentile (z)		0.928

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	0.22
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.22	95% BCA Bootstrap UTL with	95% Coverage	0.22
	95% UPL	0.22	90% Percentile		0.174
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concDL (aluminum_ug/l_hq_signif_fish_awqc)

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95% UTL with	95% Coverage	0.247	90% Percentile (z)	0.153
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95% HW Approx. Gamma UTL with	95% Coverage	0.466		
	95% WH USL	0.395	95% HW USL	0.461

Lognormal GOF Test

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Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.239	90% Percentile (z)	0.14
	95% UPL (t)	0.355	95% Percentile (z)	0.27
	95% USL	1.214	99% Percentile (z)	0.928

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.22
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.22	95% BCA Bootstrap UTL with 95% Coverage	0.22
95% UPL	0.22	90% Percentile	0.174
90% Chebyshev UPL	0.294	95% Percentile	0.212
95% Chebyshev UPL	0.402	99% Percentile	0.218
95% USL	0.22		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
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represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	5	Number of Non-Detects	12
Number of Distinct Detects	5	Number of Distinct Non-Detects	11
Minimum Detect	0.311	Minimum Non-Detect	0.076
Maximum Detect	0.593	Maximum Non-Detect	0.249
Variance Detected	0.0118	Percent Non-Detects	70.59%
Mean Detected	0.407	SD Detected	0.108
Mean of Detected Logged Data	-0.923	SD of Detected Logged Data	0.241

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.816	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.353	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.173	KM SD	0.16
95% UTL95% Coverage	0.571	95% KM UPL (t)	0.461
90% KM Percentile (z)	0.378	95% KM Percentile (z)	0.436
99% KM Percentile (z)	0.545	95% KM USL	0.569

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.19	SD	0.156
95% UTL95% Coverage	0.577	95% UPL (t)	0.47
90% Percentile (z)	0.39	95% Percentile (z)	0.446
99% Percentile (z)	0.552	95% USL	0.575

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.502	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.679	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.335	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.357	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	20.29	k star (bias corrected MLE)	8.249
Theta hat (MLE)	0.0201	Theta star (bias corrected MLE)	0.0494
nu hat (MLE)	202.9	nu star (bias corrected)	82.49
MLE Mean (bias corrected)	0.407		
MLE Sd (bias corrected)	0.142	95% Percentile of Chisquare (2kstar)	26.94

Gamma ROS Statistics using Imputed Non-Detects

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MLE Mean (bias corrected)	0.157	MLE Sd (bias corrected)	0.169
95% Percentile of Chisquare (2kstar)	5.438	90% Percentile	0.374
95% Percentile	0.495	99% Percentile	0.778

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.809	0.881	95% Approx. Gamma UPL	0.522	0.539
95% Gamma USL	0.803	0.874			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.173	SD (KM)	0.16

Variance (KM)	0.0256	SE of Mean (KM)	0.0434
k hat (KM)	1.177	k star (KM)	1.008
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	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.678	0.704	95% Approx. Gamma UPL	0.471	0.474
95% KM Gamma Percentile	0.432	0.432	95% Gamma USL	0.675	0.7

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Shapiro Wilk Test Statistic	0.875	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Detected Data appear Lognormal at 10% Significance Level
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Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.234	Mean in Log Scale	-1.559
SD in Original Scale	0.128	SD in Log Scale	0.446
95% UTL95% Coverage	0.637	95% BCA UTL95% Coverage	0.593
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90% Percentile (z)	0.372	95% Percentile (z)	0.438
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Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.09	95% KM UTL (Lognormal)95% Coverage	0.823
KM SD of Logged Data	0.763	95% KM UPL (Lognormal)	0.487
95% KM Percentile Lognormal (z)	0.434	95% KM USL (Lognormal)	0.816

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.19	Mean in Log Scale	-1.926
SD in Original Scale	0.156	SD in Log Scale	0.73
95% UTL95% Coverage	0.894	95% UPL (t)	0.541
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concDL (antimony_ug/l_hq_signif_aquatic plants_awqc)

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Minimum	0.0019	First Quartile	0.0051
Second Largest	0.01	Median	0.006
Maximum	0.015	Third Quartile	0.008
Mean	0.00666	SD	0.00301
Coefficient of Variation	0.451	Skewness	1.331
Mean of logged Data	-5.103	SD of logged Data	0.453

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1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0141	90% Percentile (z)	0.0105
95% UPL (t)	0.0121	95% Percentile (z)	0.0116
95% USL	0.0141	99% Percentile (z)	0.0137

Gamma GOF Test

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5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.187	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

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Gamma Statistics

k hat (MLE)	5.583	k star (bias corrected MLE)	4.637
Theta hat (MLE)	0.00119	Theta star (bias corrected MLE)	0.00144
nu hat (MLE)	189.8	nu star (bias corrected)	157.7
MLE Mean (bias corrected)	0.00666	MLE Sd (bias corrected)	0.0031

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95% WH USL	0.016	95% HW USL	0.0165

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.938	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.16	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0188	90% Percentile (z)	0.0109
	95% UPL (t)	0.0137	95% Percentile (z)	0.0128
	95% USL	0.0187	99% Percentile (z)	0.0174

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	0.015
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.015	95% BCA Bootstrap UTL with	95% Coverage	0.015
	95% UPL	0.015		90% Percentile	0.00988
	90% Chebyshev UPL	0.016		95% Percentile	0.011
	95% Chebyshev UPL	0.0202		99% Percentile	0.0142
	95% USL	0.015			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	13
Minimum	3.5000E-5	First Quartile	9.1000E-5
Second Largest	1.8000E-4	Median	1.1000E-4
Maximum	2.7000E-4	Third Quartile	1.4000E-4
Mean	1.1818E-4	SD	5.3667E-5
Coefficient of Variation	0.454	Skewness	1.432
Mean of logged Data	-9.134	SD of logged Data	0.447

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.879	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.266	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.5159E-4	90% Percentile (z)	1.8695E-4
	95% UPL (t)	2.1459E-4	95% Percentile (z)	2.0645E-4
	95% USL	2.5099E-4	99% Percentile (z)	2.4302E-4

Gamma GOF Test

A-D Test Statistic	0.485	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.217	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.651	k star (bias corrected MLE)	4.693
Theta hat (MLE)	2.0911E-5	Theta star (bias corrected MLE)	2.5180E-5
nu hat (MLE)	192.1	nu star (bias corrected)	159.6
MLE Mean (bias corrected)	1.1818E-4	MLE Sd (bias corrected)	5.4550E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.2493E-4	90% Percentile	1.9124E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.2787E-4	95% Percentile	2.1980E-4
95% WH Approx. Gamma UTL with	95% Coverage	2.8354E-4	99% Percentile	2.8033E-4
95% HW Approx. Gamma UTL with	95% Coverage	2.9159E-4		
	95% WH USL	2.8251E-4	95% HW USL	2.9046E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.189	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	3.2811E-4	90% Percentile (z)	1.9142E-4
	95% UPL (t)	2.4102E-4	95% Percentile (z)	2.2521E-4
	95% USL	3.2647E-4	99% Percentile (z)	3.0549E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	2.7000E-4
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	2.7000E-4	95% BCA Bootstrap UTL with 95% Coverage	2.7000E-4
95% UPL	2.7000E-4	90% Percentile	1.7400E-4
90% Chebyshev UPL	2.8385E-4	95% Percentile	1.9800E-4
95% Chebyshev UPL	3.5889E-4	99% Percentile	2.5560E-4
95% USL	2.7000E-4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0019	First Quartile	0.0051
Second Largest	0.01	Median	0.006
Maximum	0.015	Third Quartile	0.008
Mean	0.00666	SD	0.00301
Coefficient of Variation	0.451	Skewness	1.331
Mean of logged Data	-5.103	SD of logged Data	0.453

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0141	90% Percentile (z)	0.0105
95% UPL (t)	0.0121	95% Percentile (z)	0.0116
95% USL	0.0141	99% Percentile (z)	0.0137

Gamma GOF Test

A-D Test Statistic	0.467	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.187	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.583	k star (bias corrected MLE)	4.637
Theta hat (MLE)	0.00119	Theta star (bias corrected MLE)	0.00144
nu hat (MLE)	189.8	nu star (bias corrected)	157.7
MLE Mean (bias corrected)	0.00666	MLE Sd (bias corrected)	0.0031

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0127	90% Percentile	0.0108
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0129	95% Percentile	0.0124
95% WH Approx. Gamma UTL with 95% Coverage	0.0161	99% Percentile	0.0159
95% HW Approx. Gamma UTL with 95% Coverage	0.0165		
95% WH USL	0.016	95% HW USL	0.0165

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.938	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.16	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0188	90% Percentile (z)	0.0109
95% UPL (t)	0.0137	95% Percentile (z)	0.0128
95% USL	0.0187	99% Percentile (z)	0.0174

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.015
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.015	95% BCA Bootstrap UTL with 95% Coverage	0.015
95% UPL	0.015	90% Percentile	0.00988
90% Chebyshev UPL	0.016	95% Percentile	0.011
95% Chebyshev UPL	0.0202	99% Percentile	0.0142
95% USL	0.015		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_bmi_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	13
Minimum	9.2000E-4	First Quartile	0.0024
Second Largest	0.0047	Median	0.0028
Maximum	0.0071	Third Quartile	0.0037
Mean	0.00313	SD	0.00142
Coefficient of Variation	0.453	Skewness	1.386
Mean of logged Data	-5.858	SD of logged Data	0.449

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.883	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.243	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.00666	90% Percentile (z)	0.00495
	95% UPL (t)	0.00568	95% Percentile (z)	0.00546
	95% USL	0.00664	99% Percentile (z)	0.00643

Gamma GOF Test

A-D Test Statistic	0.468	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.19	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.636	k star (bias corrected MLE)	4.681
Theta hat (MLE)	5.5544E-4	Theta star (bias corrected MLE)	6.6881E-4
nu hat (MLE)	191.6	nu star (bias corrected)	159.1
MLE Mean (bias corrected)	0.00313	MLE Sd (bias corrected)	0.00145

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.00596	90% Percentile		0.00507
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.00604	95% Percentile		0.00583
95% WH Approx. Gamma UTL with	95% Coverage	0.00752	99% Percentile		0.00743
95% HW Approx. Gamma UTL with	95% Coverage	0.00774			
	95% WH USL	0.00749		95% HW USL	0.00771

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.163	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.00872	90% Percentile (z)		0.00508
	95% UPL (t)	0.0064	95% Percentile (z)		0.00598
	95% USL	0.00868	99% Percentile (z)		0.00812

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	0.0071
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.0071	95% BCA Bootstrap UTL with	95% Coverage	0.0071
	95% UPL	0.0071	90% Percentile		0.00464
	90% Chebyshev UPL	0.00751	95% Percentile		0.00518
	95% Chebyshev UPL	0.00949	99% Percentile		0.00672
	95% USL	0.0071			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0019	First Quartile	0.0051
Second Largest	0.01	Median	0.006
Maximum	0.015	Third Quartile	0.008
Mean	0.00666	SD	0.00301

Coefficient of Variation	0.451	Skewness	1.331
Mean of logged Data	-5.103	SD of logged Data	0.453

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0141	90% Percentile (z)	0.0105
	95% UPL (t)	0.0121	95% Percentile (z)	0.0116
	95% USL	0.0141	99% Percentile (z)	0.0137

Gamma GOF Test

A-D Test Statistic	0.467	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.187	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.583	k star (bias corrected MLE)	4.637
Theta hat (MLE)	0.00119	Theta star (bias corrected MLE)	0.00144
nu hat (MLE)	189.8	nu star (bias corrected)	157.7
MLE Mean (bias corrected)	0.00666	MLE Sd (bias corrected)	0.0031

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0127	90% Percentile	0.0108
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0129	95% Percentile	0.0124
95% WH Approx. Gamma UTL with	95% Coverage	0.0161	99% Percentile	0.0159
95% HW Approx. Gamma UTL with	95% Coverage	0.0165		
	95% WH USL	0.016	95% HW USL	0.0165

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.938	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.16	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.0188	90% Percentile (z)		0.0109
	95% UPL (t)	0.0137	95% Percentile (z)		0.0128
	95% USL	0.0187	99% Percentile (z)		0.0174

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	17	95% UTL with	95% Coverage	0.015
	Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.015	95% BCA Bootstrap UTL with	95% Coverage	0.015
	95% UPL	0.015		90% Percentile	0.00988
	90% Chebyshev UPL	0.016		95% Percentile	0.011
	95% Chebyshev UPL	0.0202		99% Percentile	0.0142
	95% USL	0.015			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (antimony_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	15
Minimum	2.7000E-5	First Quartile	7.1000E-5
Second Largest	1.4000E-4	Median	8.4000E-5
Maximum	2.1000E-4	Third Quartile	1.1000E-4
Mean	9.3294E-5	SD	4.2364E-5
Coefficient of Variation	N/A	Skewness	1.328
Mean of logged Data	-9.372	SD of logged Data	0.453

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.887	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.246	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	1.9861E-4	90% Percentile (z)	1.4759E-4
	95% UPL (t)	1.6940E-4	95% Percentile (z)	1.6298E-4
	95% USL	1.9814E-4	99% Percentile (z)	1.9185E-4

Gamma GOF Test

A-D Test Statistic	0.471	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.193	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.553	k star (bias corrected MLE)	4.613
Theta hat (MLE)	1.6800E-5	Theta star (bias corrected MLE)	2.0226E-5
nu hat (MLE)	188.8	nu star (bias corrected)	156.8
MLE Mean (bias corrected)	9.3294E-5	MLE Sd (bias corrected)	4.3439E-5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		1.7842E-4	90% Percentile	1.5148E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL		1.8091E-4	95% Percentile	1.7428E-4
95% WH Approx. Gamma UTL with	95% Coverage	2.2528E-4	99% Percentile	2.2265E-4
95% HW Approx. Gamma UTL with	95% Coverage	2.3196E-4		
	95% WH USL	2.2446E-4	95% HW USL	2.3106E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.166	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	2.6237E-4	90% Percentile (z)	1.5200E-4
	95% UPL (t)	1.9195E-4	95% Percentile (z)	1.7920E-4
	95% USL	2.6104E-4	99% Percentile (z)	2.4405E-4

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	2.1000E-4
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	2.1000E-4	95% BCA Bootstrap UTL with	95% Coverage	2.1000E-4

95% UPL	2.1000E-4	90% Percentile	1.4000E-4
90% Chebyshev UPL	2.2407E-4	95% Percentile	1.5400E-4
95% Chebyshev UPL	2.8331E-4	99% Percentile	1.9880E-4
95% USL	2.1000E-4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	13		
Number of Detects	14	Number of Non-Detects	3
Number of Distinct Detects	12	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.145	Maximum Non-Detect	0.008
Variance Detected	0.00118	Percent Non-Detects	17.65%
Mean Detected	0.0291	SD Detected	0.0343
Mean of Detected Logged Data	-3.837	SD of Detected Logged Data	0.689

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.513	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.349	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0254	KM SD	0.0311
95% UTL95% Coverage	0.103	95% KM UPL (t)	0.0812
90% KM Percentile (z)	0.0652	95% KM Percentile (z)	0.0765
99% KM Percentile (z)	0.0976	95% KM USL	0.102

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0247	SD	0.0324
95% UTL95% Coverage	0.105	95% UPL (t)	0.083
90% Percentile (z)	0.0663	95% Percentile (z)	0.0781
99% Percentile (z)	0.1	95% USL	0.105

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.25	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.226	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.232	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.808	k star (bias corrected MLE)	1.468
Theta hat (MLE)	0.0161	Theta star (bias corrected MLE)	0.0198
nu hat (MLE)	50.63	nu star (bias corrected)	41.11
MLE Mean (bias corrected)	0.0291		
MLE Sd (bias corrected)	0.0241	95% Percentile of Chisquare (2kstar)	7.704

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.009	Mean	0.0258
Maximum	0.145	Median	0.019
SD	0.0318	CV	1.235
k hat (MLE)	1.742	k star (bias corrected MLE)	1.474
Theta hat (MLE)	0.0148	Theta star (bias corrected MLE)	0.0175
nu hat (MLE)	59.22	nu star (bias corrected)	50.11
MLE Mean (bias corrected)	0.0258	MLE Sd (bias corrected)	0.0212
95% Percentile of Chisquare (2kstar)	7.723	90% Percentile	0.0539
95% Percentile	0.0675	99% Percentile	0.0982

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0982	0.0987	95% Approx. Gamma UPL	0.0686	0.0673
95% Gamma USL	0.0977	0.0982			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0254	SD (KM)	0.0311
Variance (KM)	9.6412E-4	SE of Mean (KM)	0.00782
k hat (KM)	0.67	k star (KM)	0.591
nu hat (KM)	22.77	nu star (KM)	20.09
theta hat (KM)	0.0379	theta star (KM)	0.043
80% gamma percentile (KM)	0.0419	90% gamma percentile (KM)	0.0663
95% gamma percentile (KM)	0.092	99% gamma percentile (KM)	0.154

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0967	0.0976	95% Approx. Gamma UPL	0.0673	0.0663
95% KM Gamma Percentile	0.0618	0.0605	95% Gamma USL	0.0961	0.097

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.864	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.158	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0248	Mean in Log Scale	-4.109
SD in Original Scale	0.0324	SD in Log Scale	0.874
95% UTL95% Coverage	0.144	95% BCA UTL95% Coverage	0.145
95% Bootstrap (%) UTL95% Coverage	0.145	95% UPL (t)	0.0789
90% Percentile (z)	0.0503	95% Percentile (z)	0.0691
99% Percentile (z)	0.125	95% USL	0.143

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.012	95% KM UTL (Lognormal)95% Coverage	0.106
KM SD of Logged Data	0.711	95% KM UPL (Lognormal)	0.065
95% KM Percentile Lognormal (z)	0.0583	95% KM USL (Lognormal)	0.105

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0247	Mean in Log Scale	-4.134
SD in Original Scale	0.0324	SD in Log Scale	0.908
95% UTL95% Coverage	0.153	95% UPL (t)	0.0818
90% Percentile (z)	0.0513	95% Percentile (z)	0.0713
99% Percentile (z)	0.132	95% USL	0.151

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	0.145
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.145
95% USL	0.145	95% KM Chebyshev UPL	0.165

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	13		
Number of Detects	14	Number of Non-Detects	3
Number of Distinct Detects	12	Number of Distinct Non-Detects	1
Minimum Detect	0.009	Minimum Non-Detect	0.008
Maximum Detect	0.145	Maximum Non-Detect	0.008
Variance Detected	0.00118	Percent Non-Detects	17.65%
Mean Detected	0.0291	SD Detected	0.0343
Mean of Detected Logged Data	-3.837	SD of Detected Logged Data	0.689

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.513	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.825	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.349	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.263	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0254	KM SD	0.0311
95% UTL95% Coverage	0.103	95% KM UPL (t)	0.0812
90% KM Percentile (z)	0.0652	95% KM Percentile (z)	0.0765
99% KM Percentile (z)	0.0976	95% KM USL	0.102

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0247	SD	0.0324
95% UTL95% Coverage	0.105	95% UPL (t)	0.083
90% Percentile (z)	0.0663	95% Percentile (z)	0.0781
99% Percentile (z)	0.1	95% USL	0.105

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.25	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level
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Detected data follow Appr. Gamma Distribution at 5% Significance Level

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MLE Mean (bias corrected)	0.0291		
MLE Sd (bias corrected)	0.0241	95% Percentile of Chisquare (2kstar)	7.704

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

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nu hat (MLE)	59.22	nu star (bias corrected)	50.11
MLE Mean (bias corrected)	0.0258	MLE Sd (bias corrected)	0.0212
95% Percentile of Chisquare (2kstar)	7.723	90% Percentile	0.0539
95% Percentile	0.0675	99% Percentile	0.0982

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0982	0.0987	95% Approx. Gamma UPL	0.0686	0.0673
95% Gamma USL	0.0977	0.0982			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0254	SD (KM)	0.0311
Variance (KM)	9.6412E-4	SE of Mean (KM)	0.00782
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Mean in Original Scale	0.0248	Mean in Log Scale	-4.109
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KM Mean of Logged Data	-4.012	95% KM UTL (Lognormal)95% Coverage	0.106
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Mean in Original Scale	0.0247	Mean in Log Scale	-4.134
SD in Original Scale	0.0324	SD in Log Scale	0.908
95% UTL95% Coverage	0.153	95% UPL (t)	0.0818
90% Percentile (z)	0.0513	95% Percentile (z)	0.0713
99% Percentile (z)	0.132	95% USL	0.151

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Nonparametric Distribution Free Background Statistics

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Order of Statistic, r	17	95% UTL with95% Coverage	0.145
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concDL (cadmium_ug/l_concentration_fish_awqc)

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KM Mean	0.0254	KM SD	0.0311
95% UTL95% Coverage	0.103	95% KM UPL (t)	0.0812
90% KM Percentile (z)	0.0652	95% KM Percentile (z)	0.0765
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95% KM Gamma Percentile	0.0618	0.0605	95% Gamma USL	0.0961	0.097

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.864	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level	
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Mean in Original Scale	0.0248	Mean in Log Scale	-4.109
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95% UTL95% Coverage	0.144	95% BCA UTL95% Coverage	0.145
95% Bootstrap (%) UTL95% Coverage	0.145	95% UPL (t)	0.0789
90% Percentile (z)	0.0503	95% Percentile (z)	0.0691
99% Percentile (z)	0.125	95% USL	0.143

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.012	95% KM UTL (Lognormal)95% Coverage	0.106
KM SD of Logged Data	0.711	95% KM UPL (Lognormal)	0.065
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Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0247	Mean in Log Scale	-4.134
SD in Original Scale	0.0324	SD in Log Scale	0.908
95% UTL95% Coverage	0.153	95% UPL (t)	0.0818
90% Percentile (z)	0.0513	95% Percentile (z)	0.0713
99% Percentile (z)	0.132	95% USL	0.151

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	0.145
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.145
95% USL	0.145	95% KM Chebyshev UPL	0.165

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	0.009	First Quartile	0.016
Second Largest	0.08	Median	0.032
Maximum	0.21	Third Quartile	0.046

Mean	0.0439	SD	0.0473
Coefficient of Variation	1.078	Skewness	2.988
Mean of logged Data	-3.469	SD of logged Data	0.807

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.648	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.162	90% Percentile (z)	0.105
	95% UPL (t)	0.129	95% Percentile (z)	0.122
	95% USL	0.161	99% Percentile (z)	0.154

Gamma GOF Test

A-D Test Statistic	0.493	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.147	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.606	k star (bias corrected MLE)	1.361
Theta hat (MLE)	0.0273	Theta star (bias corrected MLE)	0.0322
nu hat (MLE)	54.59	nu star (bias corrected)	46.29
MLE Mean (bias corrected)	0.0439	MLE Sd (bias corrected)	0.0376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.122	90% Percentile	0.0936
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.123	95% Percentile	0.118
95% WH Approx. Gamma UTL with	95% Coverage	0.177	99% Percentile	0.174
95% HW Approx. Gamma UTL with	95% Coverage	0.185		
	95% WH USL	0.176	95% HW USL	0.184

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.968	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0941	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.231	90% Percentile (z)	0.0876
	95% UPL (t)	0.133	95% Percentile (z)	0.117
	95% USL	0.229	99% Percentile (z)	0.203

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	0.21
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.21	95% BCA Bootstrap UTL with 95% Coverage	0.21
	95% UPL	0.21	90% Percentile	0.0734
	90% Chebyshev UPL	0.19	95% Percentile	0.106
	95% Chebyshev UPL	0.256	99% Percentile	0.189
	95% USL	0.21		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	13
Minimum	1.4000E-4	First Quartile	1.8000E-4
Second Largest	6.4000E-4	Median	3.4000E-4
Maximum	0.0026	Third Quartile	4.3000E-4
Mean	4.5471E-4	SD	5.7403E-4
Coefficient of Variation	1.262	Skewness	3.637
Mean of logged Data	-8.038	SD of logged Data	0.737

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.504	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.315	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.00188	90% Percentile (z)	0.00119
	95% UPL (t)	0.00149	95% Percentile (z)	0.0014
	95% USL	0.00188	99% Percentile (z)	0.00179

Gamma GOF Test

A-D Test Statistic	1.179	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.754	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.193	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.61	k star (bias corrected MLE)	1.365
Theta hat (MLE)	2.8246E-4	Theta star (bias corrected MLE)	3.3313E-4
nu hat (MLE)	54.73	nu star (bias corrected)	46.41
MLE Mean (bias corrected)	4.5471E-4	MLE Sd (bias corrected)	3.8920E-4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00124	90% Percentile	9.6965E-4
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.00123	95% Percentile	0.00122
95% WH Approx. Gamma UTL with 95% Coverage	0.0018	99% Percentile	0.0018
95% HW Approx. Gamma UTL with 95% Coverage	0.00183		
95% WH USL	0.00179	95% HW USL	0.00181

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.879	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.128	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.00202	90% Percentile (z)	8.3137E-4
	95% UPL (t)	0.00122	95% Percentile (z)	0.00109
	95% USL	0.002	99% Percentile (z)	0.0018

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with	95% Coverage	0.0026
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
		Approximate Sample Size needed to achieve specified CC		59

95% Percentile Bootstrap UTL with	95% Coverage	0.0026	95% BCA Bootstrap UTL with	95% Coverage	0.0026
	95% UPL	0.0026		90% Percentile	6.1000E-4
	90% Chebyshev UPL	0.00223		95% Percentile	0.00103
	95% Chebyshev UPL	0.00303		99% Percentile	0.00229
	95% USL	0.0026			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	0.009	First Quartile	0.016
Second Largest	0.08	Median	0.032
Maximum	0.21	Third Quartile	0.046
Mean	0.0439	SD	0.0473
Coefficient of Variation	1.078	Skewness	2.988
Mean of logged Data	-3.469	SD of logged Data	0.807

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.648	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.162		90% Percentile (z)	0.105
	95% UPL (t)	0.129		95% Percentile (z)	0.122
	95% USL	0.161		99% Percentile (z)	0.154

Gamma GOF Test

A-D Test Statistic	0.493	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.147	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.606	k star (bias corrected MLE)	1.361
Theta hat (MLE)	0.0273	Theta star (bias corrected MLE)	0.0322
nu hat (MLE)	54.59	nu star (bias corrected)	46.29
MLE Mean (bias corrected)	0.0439	MLE Sd (bias corrected)	0.0376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.122	90% Percentile	0.0936
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.123	95% Percentile	0.118
95% WH Approx. Gamma UTL with 95% Coverage	0.177	99% Percentile	0.174
95% HW Approx. Gamma UTL with 95% Coverage	0.185		
95% WH USL	0.176	95% HW USL	0.184

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.968	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.0941	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.231	90% Percentile (z)	0.0876
95% UPL (t)	0.133	95% Percentile (z)	0.117
95% USL	0.229	99% Percentile (z)	0.203

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.21
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.21	95% BCA Bootstrap UTL with 95% Coverage	0.21
95% UPL	0.21	90% Percentile	0.0734
90% Chebyshev UPL	0.19	95% Percentile	0.106
95% Chebyshev UPL	0.256	99% Percentile	0.189
95% USL	0.21		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	0.009	First Quartile	0.016
Second Largest	0.08	Median	0.032
Maximum	0.21	Third Quartile	0.046
Mean	0.0439	SD	0.0473
Coefficient of Variation	1.078	Skewness	2.988
Mean of logged Data	-3.469	SD of logged Data	0.807

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.648	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.162	90% Percentile (z)	0.105
95% UPL (t)	0.129	95% Percentile (z)	0.122
95% USL	0.161	99% Percentile (z)	0.154

Gamma GOF Test

A-D Test Statistic	0.493	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.147	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.606	k star (bias corrected MLE)	1.361
Theta hat (MLE)	0.0273	Theta star (bias corrected MLE)	0.0322
nu hat (MLE)	54.59	nu star (bias corrected)	46.29
MLE Mean (bias corrected)	0.0439	MLE Sd (bias corrected)	0.0376

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.122	90% Percentile	0.0936
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.123	95% Percentile	0.118
95% WH Approx. Gamma UTL with 95% Coverage	0.177	99% Percentile	0.174
95% HW Approx. Gamma UTL with 95% Coverage	0.185		
95% WH USL	0.176	95% HW USL	0.184

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.968	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0941	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.231	90% Percentile (z)	0.0876
	95% UPL (t)	0.133	95% Percentile (z)	0.117
	95% USL	0.229	99% Percentile (z)	0.203

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	0.21
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.21	95% BCA Bootstrap UTL with 95% Coverage	0.21
	95% UPL	0.21	90% Percentile	0.0734
	90% Chebyshev UPL	0.19	95% Percentile	0.106
	95% Chebyshev UPL	0.256	99% Percentile	0.189
	95% USL	0.21		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (cadmium_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	0.0012	First Quartile	0.0022
Second Largest	0.011	Median	0.0044
Maximum	0.028	Third Quartile	0.0066
Mean	0.00603	SD	0.00632
Coefficient of Variation	1.048	Skewness	2.893
Mean of logged Data	-5.448	SD of logged Data	0.806

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.666	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.256	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0217	90% Percentile (z)	0.0141
	95% UPL (t)	0.0174	95% Percentile (z)	0.0164
	95% USL	0.0217	99% Percentile (z)	0.0207

Gamma GOF Test

A-D Test Statistic	0.441	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.141	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.632	k star (bias corrected MLE)	1.384
Theta hat (MLE)	0.00369	Theta star (bias corrected MLE)	0.00436
nu hat (MLE)	55.5	nu star (bias corrected)	47.04
MLE Mean (bias corrected)	0.00603	MLE Sd (bias corrected)	0.00513

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0167	90% Percentile	0.0128
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0169	95% Percentile	0.0161
95% WH Approx. Gamma UTL with 95% Coverage	0.0242	99% Percentile	0.0237
95% HW Approx. Gamma UTL with 95% Coverage	0.0253		
95% WH USL	0.024	95% HW USL	0.0251

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.974	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.0917	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.032	90% Percentile (z)	0.0121
	95% UPL (t)	0.0183	95% Percentile (z)	0.0162
	95% USL	0.0317	99% Percentile (z)	0.0281

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.028
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.028	95% BCA Bootstrap UTL with 95% Coverage	0.028
95% UPL	0.028	90% Percentile	0.0102
90% Chebyshev UPL	0.0255	95% Percentile	0.0144
95% Chebyshev UPL	0.0344	99% Percentile	0.0253
95% USL	0.028		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (calcium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	16
Minimum	13700	First Quartile	17875
Second Largest	33700	Median	20850
Maximum	40700	Third Quartile	29000
Mean	23783	SD	7625
Coefficient of Variation	0.321	Skewness	0.643
Mean of logged Data	10.03	SD of logged Data	0.313

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.915	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.2	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	42487	90% Percentile (z)	33555
95% UPL (t)	37411	95% Percentile (z)	36325
95% USL	42876	99% Percentile (z)	41521

Gamma GOF Test

A-D Test Statistic	0.619	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.199	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.81	k star (bias corrected MLE)	9.049
Theta hat (MLE)	2199	Theta star (bias corrected MLE)	2628
nu hat (MLE)	389.3	nu star (bias corrected)	325.8
MLE Mean (bias corrected)	23783	MLE Sd (bias corrected)	7906

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	38697	90% Percentile	34310
95% Hawkins Wixley (HW) Approx. Gamma UPL	38924	95% Percentile	38103
95% WH Approx. Gamma UTL with 95% Coverage	45969	99% Percentile	45918
95% HW Approx. Gamma UTL with 95% Coverage	46605		
95% WH USL	46562	95% HW USL	47237

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.94	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.187	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	48947	90% Percentile (z)	33908
95% UPL (t)	39730	95% Percentile (z)	37996
95% USL	49736	99% Percentile (z)	47042

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	40700
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	40700	95% BCA Bootstrap UTL with 95% Coverage	40700
95% UPL	40700	90% Percentile	32790
90% Chebyshev UPL	47284	95% Percentile	34750
95% Chebyshev UPL	57929	99% Percentile	39510
95% USL	40700		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (chloride_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
Minimum	0.16	First Quartile	0.328
Second Largest	4.58	Median	0.635
Maximum	5.4	Third Quartile	1.363
Mean	1.321	SD	1.616
Coefficient of Variation	1.223	Skewness	1.741
Mean of logged Data	-0.303	SD of logged Data	1.069

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.291	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	5.285	90% Percentile (z)	3.392
	95% UPL (t)	4.209	95% Percentile (z)	3.979
	95% USL	5.367	99% Percentile (z)	5.08

Gamma GOF Test

A-D Test Statistic	0.993	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.221	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.209	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.994	k star (bias corrected MLE)	0.865
Theta hat (MLE)	1.329	Theta star (bias corrected MLE)	1.527
nu hat (MLE)	35.78	nu star (bias corrected)	31.15
MLE Mean (bias corrected)	1.321	MLE Sd (bias corrected)	1.42

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4.334	90% Percentile	3.152
95% Hawkins Wixley (HW) Approx. Gamma UPL	4.423	95% Percentile	4.167
95% WH Approx. Gamma UTL with 95% Coverage	6.635	99% Percentile	6.549
95% HW Approx. Gamma UTL with 95% Coverage	7.106		
95% WH USL	6.839	95% HW USL	7.353

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.159	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	10.16	90% Percentile (z)	2.906
95% UPL (t)	4.989	95% Percentile (z)	4.285
95% USL	10.73	99% Percentile (z)	8.876

Nonparametric Distribution Free Background Statistics

Data appear Lognormal at 10% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	5.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.4	95% BCA Bootstrap UTL with 95% Coverage	5.4
95% UPL	5.4	90% Percentile	4.118
90% Chebyshev UPL	6.302	95% Percentile	4.703
95% Chebyshev UPL	8.558	99% Percentile	5.261
95% USL	5.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	15		
Number of Detects	0	Number of Non-Detects	17
Number of Distinct Detects	0	Number of Distinct Non-Detects	15
Minimum Detect	N/A	Minimum Non-Detect	0.01

Maximum Detect	N/A	Maximum Non-Detect	1.29
Variance Detected	N/A	Percent Non-Detects	100%
Mean Detected	N/A	SD Detected	N/A
Mean of Detected Logged Data	N/A	SD of Detected Logged Data	N/A

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_aquatic plants_awqc) was not processed!

concDL (copper_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	15		
Number of Detects	0	Number of Non-Detects	17
Number of Distinct Detects	0	Number of Distinct Non-Detects	15
Minimum Detect	N/A	Minimum Non-Detect	0.01
Maximum Detect	N/A	Maximum Non-Detect	1.29
Variance Detected	N/A	Percent Non-Detects	100%
Mean Detected	N/A	SD Detected	N/A
Mean of Detected Logged Data	N/A	SD of Detected Logged Data	N/A

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_bmi_awqc) was not processed!

concDL (copper_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	15		
Number of Detects	0	Number of Non-Detects	17
Number of Distinct Detects	0	Number of Distinct Non-Detects	15
Minimum Detect	N/A	Minimum Non-Detect	0.01
Maximum Detect	N/A	Maximum Non-Detect	1.29
Variance Detected	N/A	Percent Non-Detects	100%
Mean Detected	N/A	SD Detected	N/A
Mean of Detected Logged Data	N/A	SD of Detected Logged Data	N/A

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!

Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (copper_ug/l_concentration_fish_awqc) was not processed!

concDL (copper_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0038	First Quartile	0.07
Second Largest	0.93	Median	0.3
Maximum	2.8	Third Quartile	0.79
Mean	0.509	SD	0.674
Coefficient of Variation	1.324	Skewness	2.682
Mean of logged Data	-1.737	SD of logged Data	1.966

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.685	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.185	90% Percentile (z)	1.373
	95% UPL (t)	1.72	95% Percentile (z)	1.618
	95% USL	2.177	99% Percentile (z)	2.077

Gamma GOF Test

A-D Test Statistic	0.434	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.791	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.154	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.584	k star (bias corrected MLE)	0.52
Theta hat (MLE)	0.871	Theta star (bias corrected MLE)	0.978
nu hat (MLE)	19.86	nu star (bias corrected)	17.69
MLE Mean (bias corrected)	0.509	MLE Sd (bias corrected)	0.706

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.035	90% Percentile	1.366
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.306	95% Percentile	1.928
95% WH Approx. Gamma UTL with 95% Coverage	3.373	99% Percentile	3.304
95% HW Approx. Gamma UTL with 95% Coverage	4.194		
95% WH USL	3.348	95% HW USL	4.157

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.874	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.233	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	23.37	90% Percentile (z)	2.188
95% UPL (t)	6.022	95% Percentile (z)	4.469
95% USL	22.86	99% Percentile (z)	17.07

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	2.8
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	2.8	95% BCA Bootstrap UTL with 95% Coverage	2.8
95% UPL	2.8	90% Percentile	0.912
90% Chebyshev UPL	2.59	95% Percentile	1.304
95% Chebyshev UPL	3.532	99% Percentile	2.501
95% USL	2.8		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0038	First Quartile	0.07
Second Largest	0.93	Median	0.3

Maximum	2.8	Third Quartile	0.79
Mean	0.509	SD	0.674
Coefficient of Variation	1.324	Skewness	2.682
Mean of logged Data	-1.737	SD of logged Data	1.966

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.685	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.185	90% Percentile (z)	1.373
	95% UPL (t)	1.72	95% Percentile (z)	1.618
	95% USL	2.177	99% Percentile (z)	2.077

Gamma GOF Test

A-D Test Statistic	0.434	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.791	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.154	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.584	k star (bias corrected MLE)	0.52
Theta hat (MLE)	0.871	Theta star (bias corrected MLE)	0.978
nu hat (MLE)	19.86	nu star (bias corrected)	17.69
MLE Mean (bias corrected)	0.509	MLE Sd (bias corrected)	0.706

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2.035	90% Percentile	1.366
95% Hawkins Wixley (HW) Approx. Gamma UPL		2.306	95% Percentile	1.928
95% WH Approx. Gamma UTL with	95% Coverage	3.373	99% Percentile	3.304
95% HW Approx. Gamma UTL with	95% Coverage	4.194		
	95% WH USL	3.348	95% HW USL	4.157

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.874	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.233	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	23.37	90% Percentile (z)		2.188
	95% UPL (t)	6.022	95% Percentile (z)		4.469
	95% USL	22.86	99% Percentile (z)		17.07

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	2.8
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	2.8	95% BCA Bootstrap UTL with	95% Coverage	2.8
	95% UPL	2.8		90% Percentile	0.912
	90% Chebyshev UPL	2.59		95% Percentile	1.304
	95% Chebyshev UPL	3.532		99% Percentile	2.501
	95% USL	2.8			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0038	First Quartile	0.07
Second Largest	0.93	Median	0.3
Maximum	2.8	Third Quartile	0.79
Mean	0.509	SD	0.674
Coefficient of Variation	1.324	Skewness	2.682
Mean of logged Data	-1.737	SD of logged Data	1.966

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.685	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.185	90% Percentile (z)		1.373
	95% UPL (t)	1.72	95% Percentile (z)		1.618
	95% USL	2.177	99% Percentile (z)		2.077

Gamma GOF Test

A-D Test Statistic	0.434	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.791	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.154	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.584	k star (bias corrected MLE)	0.52
Theta hat (MLE)	0.871	Theta star (bias corrected MLE)	0.978
nu hat (MLE)	19.86	nu star (bias corrected)	17.69
MLE Mean (bias corrected)	0.509	MLE Sd (bias corrected)	0.706

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.035	90% Percentile	1.366
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.306	95% Percentile	1.928
95% WH Approx. Gamma UTL with 95% Coverage	3.373	99% Percentile	3.304
95% HW Approx. Gamma UTL with 95% Coverage	4.194		
95% WH USL	3.348	95% HW USL	4.157

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.874	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.233	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	23.37	90% Percentile (z)		2.188
	95% UPL (t)	6.022	95% Percentile (z)		4.469
	95% USL	22.86	99% Percentile (z)		17.07

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with	95% Coverage	2.8
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582

			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	2.8	95% BCA Bootstrap UTL with	95% Coverage	2.8
	95% UPL	2.8		90% Percentile	0.912
	90% Chebyshev UPL	2.59		95% Percentile	1.304
	95% Chebyshev UPL	3.532		99% Percentile	2.501
	95% USL	2.8			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	5.3000E-4	First Quartile	0.0074
Second Largest	0.11	Median	0.039
Maximum	0.16	Third Quartile	0.089
Mean	0.0488	SD	0.0458
Coefficient of Variation	0.937	Skewness	0.997
Mean of logged Data	-3.909	SD of logged Data	1.871

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.88	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.239	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.163	90% Percentile (z)		0.107
	95% UPL (t)	0.131	95% Percentile (z)		0.124
	95% USL	0.162	99% Percentile (z)		0.155

Gamma GOF Test

A-D Test Statistic	0.734	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.782	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.225	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.218	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.681	k star (bias corrected MLE)	0.6
Theta hat (MLE)	0.0717	Theta star (bias corrected MLE)	0.0814
nu hat (MLE)	23.17	nu star (bias corrected)	20.41
MLE Mean (bias corrected)	0.0488	MLE Sd (bias corrected)	0.063

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.19	90% Percentile	0.127
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.22	95% Percentile	0.176
95% WH Approx. Gamma UTL with 95% Coverage	0.307	99% Percentile	0.293
95% HW Approx. Gamma UTL with 95% Coverage	0.389		
95% WH USL	0.305	95% HW USL	0.386

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.826	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.291	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	2.098	90% Percentile (z)	0.22
95% UPL (t)	0.578	95% Percentile (z)	0.435
95% USL	2.055	99% Percentile (z)	1.557

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.16
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.16	95% BCA Bootstrap UTL with 95% Coverage	0.16
95% UPL	0.16	90% Percentile	0.102
90% Chebyshev UPL	0.19	95% Percentile	0.12
95% Chebyshev UPL	0.254	99% Percentile	0.152
95% USL	0.16		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (copper_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0067	First Quartile	0.14
Second Largest	1.7	Median	0.53
Maximum	5.8	Third Quartile	1.4
Mean	0.971	SD	1.38
Coefficient of Variation	1.421	Skewness	2.942
Mean of logged Data	-1.13	SD of logged Data	1.982

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.644	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.269	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.401	90% Percentile (z)	2.739
	95% UPL (t)	3.45	95% Percentile (z)	3.241
	95% USL	4.386	99% Percentile (z)	4.181

Gamma GOF Test

A-D Test Statistic	0.392	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.792	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.138	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.566	k star (bias corrected MLE)	0.506
Theta hat (MLE)	1.714	Theta star (bias corrected MLE)	1.92
nu hat (MLE)	19.26	nu star (bias corrected)	17.19
MLE Mean (bias corrected)	0.971	MLE Sd (bias corrected)	1.365

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		3.894	90% Percentile	2.62
95% Hawkins Wixley (HW) Approx. Gamma UPL		4.387	95% Percentile	3.714
95% WH Approx. Gamma UTL with	95% Coverage	6.487	99% Percentile	6.402
95% HW Approx. Gamma UTL with	95% Coverage	8.021		
	95% WH USL	6.438	95% HW USL	7.949

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.883	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.222	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	44.55	90% Percentile (z)	4.095
	95% UPL (t)	11.36	95% Percentile (z)	8.412
	95% USL	43.57	99% Percentile (z)	32.47

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	5.8
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	5.8	95% BCA Bootstrap UTL with	95% Coverage	5.8
	95% UPL	5.8		90% Percentile	1.7
	90% Chebyshev UPL	5.231		95% Percentile	2.52
	95% Chebyshev UPL	7.16		99% Percentile	5.144
	95% USL	5.8			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (doc_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	16	Number of Non-Detects	1
Number of Distinct Detects	15	Number of Distinct Non-Detects	1
Minimum Detect	0.28	Minimum Non-Detect	0.07
Maximum Detect	1.94	Maximum Non-Detect	0.07
Variance Detected	0.264	Percent Non-Detects	5.882%
Mean Detected	0.833	SD Detected	0.514
Mean of Detected Logged Data	-0.352	SD of Detected Logged Data	0.6

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.844	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.191	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.248	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.789	KM SD	0.515
95% UTL95% Coverage	2.068	95% KM UPL (t)	1.713
90% KM Percentile (z)	1.448	95% KM Percentile (z)	1.635
99% KM Percentile (z)	1.986	95% KM USL	2.062

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.786	SD	0.534
95% UTL95% Coverage	2.113	95% UPL (t)	1.745
90% Percentile (z)	1.47	95% Percentile (z)	1.664
99% Percentile (z)	2.028	95% USL	2.107

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.482	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.143	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.217	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.095	k star (bias corrected MLE)	2.556
Theta hat (MLE)	0.269	Theta star (bias corrected MLE)	0.326
nu hat (MLE)	99.03	nu star (bias corrected)	81.8
MLE Mean (bias corrected)	0.833		
MLE Sd (bias corrected)	0.521	95% Percentile of Chisquare (2kstar)	11.24

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.785
Maximum	1.94	Median	0.595

SD	0.536	CV	0.683
k hat (MLE)	1.532	k star (bias corrected MLE)	1.301
Theta hat (MLE)	0.512	Theta star (bias corrected MLE)	0.603
nu hat (MLE)	52.1	nu star (bias corrected)	44.24
MLE Mean (bias corrected)	0.785	MLE Sd (bias corrected)	0.688
95% Percentile of Chisquare (2kstar)	7.113	90% Percentile	1.694
95% Percentile	2.146	99% Percentile	3.176

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.205	3.726	95% Approx. Gamma UPL	2.225	2.447
95% Gamma USL	3.187	3.702			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.789	SD (KM)	0.515
Variance (KM)	0.265	SE of Mean (KM)	0.129
k hat (KM)	2.346	k star (KM)	1.972
nu hat (KM)	79.78	nu star (KM)	67.04
theta hat (KM)	0.336	theta star (KM)	0.4
80% gamma percentile (KM)	1.183	90% gamma percentile (KM)	1.539
95% gamma percentile (KM)	1.879	99% gamma percentile (KM)	2.634

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.72	2.932	95% Approx. Gamma UPL	1.962	2.043
95% KM Gamma Percentile	1.817	1.879	95% Gamma USL	2.706	2.916

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.947	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.906	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.128	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.196	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.794	Mean in Log Scale	-0.439
SD in Original Scale	0.523	SD in Log Scale	0.682
95% UTL95% Coverage	3.514	95% BCA UTL95% Coverage	1.94
95% Bootstrap (%) UTL95% Coverage	1.94	95% UPL (t)	2.195
90% Percentile (z)	1.545	95% Percentile (z)	1.98
99% Percentile (z)	3.151	95% USL	3.487

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.488	95% KM UTL (Lognormal)95% Coverage	4.291

KM SD of Logged Data	0.782	95% KM UPL (Lognormal)	2.502
95% KM Percentile Lognormal (z)	2.222	95% KM USL (Lognormal)	4.254

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.786	Mean in Log Scale	-0.529
SD in Original Scale	0.534	SD in Log Scale	0.931
95% UTL95% Coverage	5.961	95% UPL (t)	3.138
90% Percentile (z)	1.943	95% Percentile (z)	2.724
99% Percentile (z)	5.138	95% USL	5.899

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	1.94
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.94
95% USL	1.94	95% KM Chebyshev UPL	3.097

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (hardness_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	47	First Quartile	58.78
Second Largest	112	Median	68.05
Maximum	133	Third Quartile	96.63
Mean	78.48	SD	24.68
Coefficient of Variation	0.314	Skewness	0.691
Mean of logged Data	4.318	SD of logged Data	0.304

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.905	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.228	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	139	90% Percentile (z)	110.1
	95% UPL (t)	122.6	95% Percentile (z)	119.1
	95% USL	140.3	99% Percentile (z)	135.9

Gamma GOF Test

A-D Test Statistic	0.69	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.222	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.37	k star (bias corrected MLE)	9.516
Theta hat (MLE)	6.9	Theta star (bias corrected MLE)	8.248
nu hat (MLE)	409.5	nu star (bias corrected)	342.6
MLE Mean (bias corrected)	78.48	MLE Sd (bias corrected)	25.44

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		126.3	90% Percentile	112.3
95% Hawkins Wixley (HW) Approx. Gamma UPL		127	95% Percentile	124.5
95% WH Approx. Gamma UTL with	95% Coverage	149.6	99% Percentile	149.4
95% HW Approx. Gamma UTL with	95% Coverage	151.4		
	95% WH USL	151.4	95% HW USL	153.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.209	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	158.3	90% Percentile (z)	110.9
	95% UPL (t)	129.3	95% Percentile (z)	123.8
	95% USL	160.8	99% Percentile (z)	152.4

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with	95% Coverage	133
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603

			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	133	95% BCA Bootstrap UTL with	95% Coverage	133
	95% UPL	133		90% Percentile	107.8
	90% Chebyshev UPL	154.5		95% Percentile	115.2
	95% Chebyshev UPL	189		99% Percentile	129.4
	95% USL	133			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	11		
Number of Detects	5	Number of Non-Detects	12
Number of Distinct Detects	5	Number of Distinct Non-Detects	6
Minimum Detect	170	Minimum Non-Detect	1.5
Maximum Detect	3230	Maximum Non-Detect	78
Variance Detected	1637282	Percent Non-Detects	70.59%
Mean Detected	992	SD Detected	1280
Mean of Detected Logged Data	6.322	SD of Detected Logged Data	1.155

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.726	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.339	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	292.8	KM SD	767.4
95% UTL95% Coverage	2201	95% KM UPL (t)	1671
90% KM Percentile (z)	1276	95% KM Percentile (z)	1555
99% KM Percentile (z)	2078	95% KM USL	2192

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	296.5	SD	789.7
95% UTL95% Coverage	2260	95% UPL (t)	1715

90% Percentile (z)	1308	95% Percentile (z)	1595
99% Percentile (z)	2134	95% USL	2251

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.404	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.691	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.247	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.364	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1	k star (bias corrected MLE)	0.533
Theta hat (MLE)	992.4	Theta star (bias corrected MLE)	1861
nu hat (MLE)	9.996	nu star (bias corrected)	5.332
MLE Mean (bias corrected)	992		
MLE Sd (bias corrected)	1359	95% Percentile of Chisquare (2kstar)	4.003

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	291.8
Maximum	3230	Median	0.01
SD	791.4	CV	2.713
k hat (MLE)	0.113	k star (bias corrected MLE)	0.132
Theta hat (MLE)	2580	Theta star (bias corrected MLE)	2204
nu hat (MLE)	3.845	nu star (bias corrected)	4.5
MLE Mean (bias corrected)	291.8	MLE Sd (bias corrected)	802
95% Percentile of Chisquare (2kstar)	1.49	90% Percentile	846.6
95% Percentile	1642	99% Percentile	4013

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2576	3229	95% Approx. Gamma UPL	1212	1228
95% Gamma USL	2548	3184			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	292.8	SD (KM)	767.4
Variance (KM)	588929	SE of Mean (KM)	208.1
k hat (KM)	0.146	k star (KM)	0.159
nu hat (KM)	4.95	nu star (KM)	5.41
theta hat (KM)	2011	theta star (KM)	1840

80% gamma percentile (KM)	333.9	90% gamma percentile (KM)	874.6
95% gamma percentile (KM)	1593	99% gamma percentile (KM)	3651

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2242	2522	95% Approx. Gamma UPL	1124	1092
95% KM Gamma Percentile	942.8	884.6	95% Gamma USL	2220	2491

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.946	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.806	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.187	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.319	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	299.1	Mean in Log Scale	3.061
SD in Original Scale	788.7	SD in Log Scale	2.491
95% UTL95% Coverage	10445	95% BCA UTL95% Coverage	3230
95% Bootstrap (%) UTL95% Coverage	3230	95% UPL (t)	1875
90% Percentile (z)	519.8	95% Percentile (z)	1285
99% Percentile (z)	7018	95% USL	10158

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.146	95% KM UTL (Lognormal)95% Coverage	8032
KM SD of Logged Data	2.754	95% KM UPL (Lognormal)	1203
95% KM Percentile Lognormal (z)	792.3	95% KM USL (Lognormal)	7788

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	296.5	Mean in Log Scale	2.427
SD in Original Scale	789.7	SD in Log Scale	2.923
95% UTL95% Coverage	16207	95% UPL (t)	2160
90% Percentile (z)	479.6	95% Percentile (z)	1387
99% Percentile (z)	10164	95% USL	15686

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	3230
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3230
95% USL	3230	95% KM Chebyshev UPL	3735

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	11		
Number of Detects	5	Number of Non-Detects	12
Number of Distinct Detects	5	Number of Distinct Non-Detects	6
Minimum Detect	170	Minimum Non-Detect	1.5
Maximum Detect	3230	Maximum Non-Detect	78
Variance Detected	1637282	Percent Non-Detects	70.59%
Mean Detected	992	SD Detected	1280
Mean of Detected Logged Data	6.322	SD of Detected Logged Data	1.155

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.726	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.686	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.339	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	292.8	KM SD	767.4
95% UTL95% Coverage	2201	95% KM UPL (t)	1671
90% KM Percentile (z)	1276	95% KM Percentile (z)	1555
99% KM Percentile (z)	2078	95% KM USL	2192

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	296.5	SD	789.7
95% UTL95% Coverage	2260	95% UPL (t)	1715
90% Percentile (z)	1308	95% Percentile (z)	1595
99% Percentile (z)	2134	95% USL	2251

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Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.404	**Anderson-Darling GOF Test**

5% A-D Critical Value	0.691	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.247	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.364	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1	k star (bias corrected MLE)	0.533
Theta hat (MLE)	992.4	Theta star (bias corrected MLE)	1861
nu hat (MLE)	9.996	nu star (bias corrected)	5.332
MLE Mean (bias corrected)	992		
MLE Sd (bias corrected)	1359	95% Percentile of Chisquare (2kstar)	4.003

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

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For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	291.8
Maximum	3230	Median	0.01
SD	791.4	CV	2.713
k hat (MLE)	0.113	k star (bias corrected MLE)	0.132
Theta hat (MLE)	2580	Theta star (bias corrected MLE)	2204
nu hat (MLE)	3.845	nu star (bias corrected)	4.5
MLE Mean (bias corrected)	291.8	MLE Sd (bias corrected)	802
95% Percentile of Chisquare (2kstar)	1.49	90% Percentile	846.6
95% Percentile	1642	99% Percentile	4013

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2576	3229	95% Approx. Gamma UPL	1212	1228
95% Gamma USL	2548	3184			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	292.8	SD (KM)	767.4
Variance (KM)	588929	SE of Mean (KM)	208.1
k hat (KM)	0.146	k star (KM)	0.159
nu hat (KM)	4.95	nu star (KM)	5.41
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80% gamma percentile (KM)	333.9	90% gamma percentile (KM)	874.6
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95% KM Gamma Percentile	942.8	884.6	95% Gamma USL	2220	2491

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Shapiro Wilk Test Statistic	0.946	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.806	Detected Data appear Lognormal at 10% Significance Level	
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Detected Data appear Lognormal at 10% Significance Level

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Mean in Original Scale	299.1	Mean in Log Scale	3.061
SD in Original Scale	788.7	SD in Log Scale	2.491
95% UTL95% Coverage	10445	95% BCA UTL95% Coverage	3230
95% Bootstrap (%) UTL95% Coverage	3230	95% UPL (t)	1875
90% Percentile (z)	519.8	95% Percentile (z)	1285
99% Percentile (z)	7018	95% USL	10158

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.146	95% KM UTL (Lognormal)95% Coverage	8032
KM SD of Logged Data	2.754	95% KM UPL (Lognormal)	1203
95% KM Percentile Lognormal (z)	792.3	95% KM USL (Lognormal)	7788

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	296.5	Mean in Log Scale	2.427
SD in Original Scale	789.7	SD in Log Scale	2.923
95% UTL95% Coverage	16207	95% UPL (t)	2160
90% Percentile (z)	479.6	95% Percentile (z)	1387
99% Percentile (z)	10164	95% USL	15686

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Data appear to follow a Discernible Distribution

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Order of Statistic, r	17	95% UTL with95% Coverage	3230
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3230
95% USL	3230	95% KM Chebyshev UPL	3735

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	11		
Number of Detects	5	Number of Non-Detects	12
Number of Distinct Detects	5	Number of Distinct Non-Detects	6
Minimum Detect	170	Minimum Non-Detect	1.5
Maximum Detect	3230	Maximum Non-Detect	78
Variance Detected	1637282	Percent Non-Detects	70.59%
Mean Detected	992	SD Detected	1280
Mean of Detected Logged Data	6.322	SD of Detected Logged Data	1.155

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Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

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1% Lilliefors Critical Value	0.396	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	292.8	KM SD	767.4
95% UTL95% Coverage	2201	95% KM UPL (t)	1671
90% KM Percentile (z)	1276	95% KM Percentile (z)	1555
99% KM Percentile (z)	2078	95% KM USL	2192

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	296.5	SD	789.7
95% UTL95% Coverage	2260	95% UPL (t)	1715
90% Percentile (z)	1308	95% Percentile (z)	1595
99% Percentile (z)	2134	95% USL	2251

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.404	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.691	Detected data appear Gamma Distributed at 5% Significance Level
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Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1	k star (bias corrected MLE)	0.533
Theta hat (MLE)	992.4	Theta star (bias corrected MLE)	1861
nu hat (MLE)	9.996	nu star (bias corrected)	5.332
MLE Mean (bias corrected)	992		
MLE Sd (bias corrected)	1359	95% Percentile of Chisquare (2kstar)	4.003

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

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This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	291.8
Maximum	3230	Median	0.01
SD	791.4	CV	2.713
k hat (MLE)	0.113	k star (bias corrected MLE)	0.132
Theta hat (MLE)	2580	Theta star (bias corrected MLE)	2204
nu hat (MLE)	3.845	nu star (bias corrected)	4.5
MLE Mean (bias corrected)	291.8	MLE Sd (bias corrected)	802
95% Percentile of Chisquare (2kstar)	1.49	90% Percentile	846.6
95% Percentile	1642	99% Percentile	4013

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2576	3229	95% Approx. Gamma UPL	1212	1228
95% Gamma USL	2548	3184			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	292.8	SD (KM)	767.4
Variance (KM)	588929	SE of Mean (KM)	208.1
k hat (KM)	0.146	k star (KM)	0.159
nu hat (KM)	4.95	nu star (KM)	5.41
theta hat (KM)	2011	theta star (KM)	1840
80% gamma percentile (KM)	333.9	90% gamma percentile (KM)	874.6
95% gamma percentile (KM)	1593	99% gamma percentile (KM)	3651

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2242	2522	95% Approx. Gamma UPL	1124	1092
95% KM Gamma Percentile	942.8	884.6	95% Gamma USL	2220	2491

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.946	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.806	Detected Data appear Lognormal at 10% Significance Level	

Lilliefors Test Statistic	0.187	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.319	Detected Data appear Lognormal at 10% Significance Level	

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	299.1	Mean in Log Scale	3.061
SD in Original Scale	788.7	SD in Log Scale	2.491
95% UTL95% Coverage	10445	95% BCA UTL95% Coverage	3230
95% Bootstrap (%) UTL95% Coverage	3230	95% UPL (t)	1875
90% Percentile (z)	519.8	95% Percentile (z)	1285
99% Percentile (z)	7018	95% USL	10158

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.146	95% KM UTL (Lognormal)95% Coverage	8032
KM SD of Logged Data	2.754	95% KM UPL (Lognormal)	1203
95% KM Percentile Lognormal (z)	792.3	95% KM USL (Lognormal)	7788

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	296.5	Mean in Log Scale	2.427
SD in Original Scale	789.7	SD in Log Scale	2.923
95% UTL95% Coverage	16207	95% UPL (t)	2160
90% Percentile (z)	479.6	95% Percentile (z)	1387
99% Percentile (z)	10164	95% USL	15686

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	3230
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3230
95% USL	3230	95% KM Chebyshev UPL	3735

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	11
Minimum	0.0015	First Quartile	0.0015

Second Largest	0.87	Median	0.011
Maximum	3.2	Third Quartile	0.17
Mean	0.299	SD	0.781
Coefficient of Variation	2.609	Skewness	3.612
Mean of logged Data	-3.992	SD of logged Data	2.637

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.439	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.351	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.241	90% Percentile (z)	1.3
	95% UPL (t)	1.703	95% Percentile (z)	1.584
	95% USL	2.232	99% Percentile (z)	2.117

Gamma GOF Test

A-D Test Statistic	1.349	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.862	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.219	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.229	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.254	k star (bias corrected MLE)	0.249
Theta hat (MLE)	1.177	Theta star (bias corrected MLE)	1.204
nu hat (MLE)	8.645	nu star (bias corrected)	8.453
MLE Mean (bias corrected)	0.299	MLE Sd (bias corrected)	0.6

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		1.242	90% Percentile	0.899
95% Hawkins Wixley (HW) Approx. Gamma UPL		1.26	95% Percentile	1.452
95% WH Approx. Gamma UTL with	95% Coverage	2.398	99% Percentile	2.924
95% HW Approx. Gamma UTL with	95% Coverage	2.772		
	95% WH USL	2.375	95% HW USL	2.74

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.859	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.241	**Lilliefors Lognormal GOF Test**

10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	12.99	90% Percentile (z)	0.542
	95% UPL (t)	2.108	95% Percentile (z)	1.413
	95% USL	12.61	99% Percentile (z)	8.525

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	3.2
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	3.2	95% BCA Bootstrap UTL with 95% Coverage	3.2
	95% UPL	3.2	90% Percentile	0.606
	90% Chebyshev UPL	2.711	95% Percentile	1.336
	95% Chebyshev UPL	3.803	99% Percentile	2.827
	95% USL	3.2		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	11
Minimum	1.2000E-4	First Quartile	1.2000E-4
Second Largest	0.072	Median	9.2000E-4
Maximum	0.27	Third Quartile	0.014
Mean	0.0251	SD	0.0658
Coefficient of Variation	2.62	Skewness	3.626
Mean of logged Data	-6.492	SD of logged Data	2.656

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.437	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.352	**Lilliefors GOF Test**	

1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.189	90% Percentile (z)	0.11
	95% UPL (t)	0.143	95% Percentile (z)	0.133
	95% USL	0.188	99% Percentile (z)	0.178

Gamma GOF Test

A-D Test Statistic	1.341	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.863	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.218	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.229	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.252	k star (bias corrected MLE)	0.247
Theta hat (MLE)	0.0995	Theta star (bias corrected MLE)	0.102
nu hat (MLE)	8.584	nu star (bias corrected)	8.402
MLE Mean (bias corrected)	0.0251	MLE Sd (bias corrected)	0.0506

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.104	90% Percentile	0.0755
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.106	95% Percentile	0.122
95% WH Approx. Gamma UTL with 95% Coverage	0.201	99% Percentile	0.246
95% HW Approx. Gamma UTL with 95% Coverage	0.233		
95% WH USL	0.199	95% HW USL	0.23

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.86	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.116	90% Percentile (z)	0.0455
	95% UPL (t)	0.179	95% Percentile (z)	0.12
	95% USL	1.083	99% Percentile (z)	0.73

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with	95% Coverage	0.27

Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.27	95% BCA Bootstrap UTL with 95% Coverage	0.27
95% UPL	0.27	90% Percentile	0.0504
90% Chebyshev UPL	0.228	95% Percentile	0.112
95% Chebyshev UPL	0.32	99% Percentile	0.238
95% USL	0.27		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	11
Minimum	0.0015	First Quartile	0.0015
Second Largest	0.87	Median	0.011
Maximum	3.2	Third Quartile	0.17
Mean	0.299	SD	0.781
Coefficient of Variation	2.609	Skewness	3.612
Mean of logged Data	-3.992	SD of logged Data	2.637

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.439	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.351	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	2.241	90% Percentile (z)	1.3
95% UPL (t)	1.703	95% Percentile (z)	1.584
95% USL	2.232	99% Percentile (z)	2.117

Gamma GOF Test

A-D Test Statistic	1.349	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.862	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.219	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.229	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.254	k star (bias corrected MLE)	0.249
Theta hat (MLE)	1.177	Theta star (bias corrected MLE)	1.204
nu hat (MLE)	8.645	nu star (bias corrected)	8.453
MLE Mean (bias corrected)	0.299	MLE Sd (bias corrected)	0.6

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1.242	90% Percentile	0.899
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.26	95% Percentile	1.452
95% WH Approx. Gamma UTL with 95% Coverage	2.398	99% Percentile	2.924
95% HW Approx. Gamma UTL with 95% Coverage	2.772		
95% WH USL	2.375	95% HW USL	2.74

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.859	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.241	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	12.99	90% Percentile (z)	0.542
95% UPL (t)	2.108	95% Percentile (z)	1.413
95% USL	12.61	99% Percentile (z)	8.525

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	3.2
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	3.2	95% BCA Bootstrap UTL with 95% Coverage	3.2
95% UPL	3.2	90% Percentile	0.606
90% Chebyshev UPL	2.711	95% Percentile	1.336
95% Chebyshev UPL	3.803	99% Percentile	2.827
95% USL	3.2		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_bmi_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0028	First Quartile	0.0039
Second Largest	1.5	Median	0.026
Maximum	4.2	Third Quartile	0.22
Mean	0.449	SD	1.051
Coefficient of Variation	2.343	Skewness	3.243
Mean of logged Data	-3.273	SD of logged Data	2.462

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.494	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.357	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3.062	90% Percentile (z)	1.796
	95% UPL (t)	2.337	95% Percentile (z)	2.178
	95% USL	3.05	99% Percentile (z)	2.894

Gamma GOF Test

A-D Test Statistic	1.252	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.85	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.205	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.228	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.282	k star (bias corrected MLE)	0.271
Theta hat (MLE)	1.592	Theta star (bias corrected MLE)	1.653
nu hat (MLE)	9.583	nu star (bias corrected)	9.225
MLE Mean (bias corrected)	0.449	MLE Sd (bias corrected)	0.861

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1.903	90% Percentile	1.337
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.954	95% Percentile	2.118
95% WH Approx. Gamma UTL with 95% Coverage	3.612	99% Percentile	4.174
95% HW Approx. Gamma UTL with 95% Coverage	4.2		

95% WH USL	3.578	95% HW USL	4.152

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.88	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.213	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	17.23	90% Percentile (z)	0.888
	95% UPL (t)	3.156	95% Percentile (z)	2.173
	95% USL	16.77	99% Percentile (z)	11.63

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	4.2
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	4.2	95% BCA Bootstrap UTL with 95% Coverage	4.2
	95% UPL	4.2	90% Percentile	1.2
	90% Chebyshev UPL	3.694	95% Percentile	2.04
	95% Chebyshev UPL	5.164	99% Percentile	3.768
	95% USL	4.2		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	11
Minimum	0.0015	First Quartile	0.0015
Second Largest	0.87	Median	0.011
Maximum	3.2	Third Quartile	0.17
Mean	0.299	SD	0.781
Coefficient of Variation	2.609	Skewness	3.612
Mean of logged Data	-3.992	SD of logged Data	2.637

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.439	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.351	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2.241	90% Percentile (z)	1.3
	95% UPL (t)	1.703	95% Percentile (z)	1.584
	95% USL	2.232	99% Percentile (z)	2.117

Gamma GOF Test

A-D Test Statistic	1.349	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.862	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.219	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.229	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.254	k star (bias corrected MLE)	0.249
Theta hat (MLE)	1.177	Theta star (bias corrected MLE)	1.204
nu hat (MLE)	8.645	nu star (bias corrected)	8.453
MLE Mean (bias corrected)	0.299	MLE Sd (bias corrected)	0.6

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1.242	90% Percentile	0.899
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.26	95% Percentile	1.452
95% WH Approx. Gamma UTL with 95% Coverage	2.398	99% Percentile	2.924
95% HW Approx. Gamma UTL with 95% Coverage	2.772		
95% WH USL	2.375	95% HW USL	2.74

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.859	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.241	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	12.99	90% Percentile (z)	0.542
	95% UPL (t)	2.108	95% Percentile (z)	1.413
	95% USL	12.61	99% Percentile (z)	8.525

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	3.2
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	3.2	95% BCA Bootstrap UTL with 95% Coverage	3.2
95% UPL	3.2	90% Percentile	0.606
90% Chebyshev UPL	2.711	95% Percentile	1.336
95% Chebyshev UPL	3.803	99% Percentile	2.827
95% USL	3.2		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (iron_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0044	First Quartile	0.0075
Second Largest	2.7	Median	0.015
Maximum	5.4	Third Quartile	0.32
Mean	0.645	SD	1.415
Coefficient of Variation	2.194	Skewness	2.857
Mean of logged Data	-2.823	SD of logged Data	2.418

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.527	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.412	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	4.161	90% Percentile (z)	2.458
95% UPL (t)	3.186	95% Percentile (z)	2.972
95% USL	4.146	99% Percentile (z)	3.936

Gamma GOF Test

A-D Test Statistic	1.368	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.846	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.27	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.227	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.291	k star (bias corrected MLE)	0.279
Theta hat (MLE)	2.217	Theta star (bias corrected MLE)	2.314
nu hat (MLE)	9.884	nu star (bias corrected)	9.473
MLE Mean (bias corrected)	0.645	MLE Sd (bias corrected)	1.221

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.769	90% Percentile	1.917
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.864	95% Percentile	3.019
95% WH Approx. Gamma UTL with 95% Coverage	5.23	99% Percentile	5.91
95% HW Approx. Gamma UTL with 95% Coverage	6.117		
95% WH USL	5.181	95% HW USL	6.049

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.869	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.245	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	24.27	90% Percentile (z)	1.318
95% UPL (t)	4.58	95% Percentile (z)	3.174
95% USL	23.62	99% Percentile (z)	16.5

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	5.4
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.4	95% BCA Bootstrap UTL with 95% Coverage	5.4
95% UPL	5.4	90% Percentile	1.98
90% Chebyshev UPL	5.012	95% Percentile	3.24
95% Chebyshev UPL	6.99	99% Percentile	4.968
95% USL	5.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	10		
Number of Detects	1	Number of Non-Detects	16
Number of Distinct Detects	1	Number of Distinct Non-Detects	9
Minimum Detect	0.877	Minimum Non-Detect	0.009
Maximum Detect	0.877	Maximum Non-Detect	0.256
Variance Detected	N/A	Percent Non-Detects	94.12%
Mean Detected	0.877	SD Detected	N/A
Mean of Detected Logged Data	-0.131	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (lead_ug/l_concentration_aquatic plants_awqc) was not processed!

concDL (lead_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	10		
Number of Detects	1	Number of Non-Detects	16
Number of Distinct Detects	1	Number of Distinct Non-Detects	9
Minimum Detect	0.877	Minimum Non-Detect	0.009
Maximum Detect	0.877	Maximum Non-Detect	0.256
Variance Detected	N/A	Percent Non-Detects	94.12%
Mean Detected	0.877	SD Detected	N/A
Mean of Detected Logged Data	-0.131	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (lead_ug/l_concentration_bmi_awqc) was not processed!

concDL (lead_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	10		
Number of Detects	1	Number of Non-Detects	16
Number of Distinct Detects	1	Number of Distinct Non-Detects	9
Minimum Detect	0.877	Minimum Non-Detect	0.009
Maximum Detect	0.877	Maximum Non-Detect	0.256
Variance Detected	N/A	Percent Non-Detects	94.12%
Mean Detected	0.877	SD Detected	N/A
Mean of Detected Logged Data	-0.131	SD of Detected Logged Data	N/A

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable concDL (lead_ug/l_concentration_fish_awqc) was not processed!

concDL (lead_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0033	First Quartile	0.005
Second Largest	0.13	Median	0.011
Maximum	0.63	Third Quartile	0.095
Mean	0.0715	SD	0.15
Coefficient of Variation	2.102	Skewness	3.574
Mean of logged Data	-3.963	SD of logged Data	1.626

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.484	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.325	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.445	90% Percentile (z)	0.264
	95% UPL (t)	0.342	95% Percentile (z)	0.319
	95% USL	0.444	99% Percentile (z)	0.421

Gamma GOF Test

A-D Test Statistic	1.335	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.802	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.261	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.221	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.482	k star (bias corrected MLE)	0.436
Theta hat (MLE)	0.148	Theta star (bias corrected MLE)	0.164
nu hat (MLE)	16.39	nu star (bias corrected)	14.83
MLE Mean (bias corrected)	0.0715	MLE Sd (bias corrected)	0.108

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.282	90% Percentile	0.199
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.286	95% Percentile	0.288
95% WH Approx. Gamma UTL with 95% Coverage	0.49	99% Percentile	0.511
95% HW Approx. Gamma UTL with 95% Coverage	0.54		
95% WH USL	0.486	95% HW USL	0.535

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.869	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.219	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1.083	90% Percentile (z)	0.153
95% UPL (t)	0.353	95% Percentile (z)	0.276
95% USL	1.064	99% Percentile (z)	0.835

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.63
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.63	95% BCA Bootstrap UTL with 95% Coverage	0.63
95% UPL	0.63	90% Percentile	0.112
90% Chebyshev UPL	0.536	95% Percentile	0.23
95% Chebyshev UPL	0.746	99% Percentile	0.55
95% USL	0.63		

Table C3-9
ProUCL Output for Porewater BTVs and BTV HQs, Approach F
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	10
Minimum	1.4000E-4	First Quartile	1.4000E-4
Second Largest	0.0041	Median	4.3000E-4
Maximum	0.014	Third Quartile	0.0023
Mean	0.00182	SD	0.00338
Coefficient of Variation	1.861	Skewness	3.256
Mean of logged Data	-7.48	SD of logged Data	1.554

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.546	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.31	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0102	90% Percentile (z)	0.00615
	95% UPL (t)	0.00789	95% Percentile (z)	0.00738
	95% USL	0.0102	99% Percentile (z)	0.00969

Gamma GOF Test

A-D Test Statistic	1.371	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.795	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.27	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.537	k star (bias corrected MLE)	0.481
Theta hat (MLE)	0.00339	Theta star (bias corrected MLE)	0.00378
nu hat (MLE)	18.25	nu star (bias corrected)	16.37
MLE Mean (bias corrected)	0.00182	MLE Sd (bias corrected)	0.00262

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00712	90% Percentile	0.00496
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.00731	95% Percentile	0.00708
95% WH Approx. Gamma UTL with 95% Coverage	0.0122	99% Percentile	0.0123
95% HW Approx. Gamma UTL with 95% Coverage	0.0135		
95% WH USL	0.0121	95% HW USL	0.0134

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.825	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.286	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0268	90% Percentile (z)	0.00413
95% UPL (t)	0.00919	95% Percentile (z)	0.00726
95% USL	0.0264	99% Percentile (z)	0.0209

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.014
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.014	95% BCA Bootstrap UTL with 95% Coverage	0.014
95% UPL	0.014	90% Percentile	0.0035
90% Chebyshev UPL	0.0123	95% Percentile	0.00608
95% Chebyshev UPL	0.017	99% Percentile	0.0124
95% USL	0.014		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0033	First Quartile	0.005
Second Largest	0.13	Median	0.011
Maximum	0.63	Third Quartile	0.095

Mean	0.0715	SD	0.15
Coefficient of Variation	2.102	Skewness	3.574
Mean of logged Data	-3.963	SD of logged Data	1.626

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.484	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.325	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.445	90% Percentile (z)	0.264
	95% UPL (t)	0.342	95% Percentile (z)	0.319
	95% USL	0.444	99% Percentile (z)	0.421

Gamma GOF Test

A-D Test Statistic	1.335	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.802	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.261	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.221	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.482	k star (bias corrected MLE)	0.436
Theta hat (MLE)	0.148	Theta star (bias corrected MLE)	0.164
nu hat (MLE)	16.39	nu star (bias corrected)	14.83
MLE Mean (bias corrected)	0.0715	MLE Sd (bias corrected)	0.108

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.282	90% Percentile	0.199
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.286	95% Percentile	0.288
95% WH Approx. Gamma UTL with	95% Coverage	0.49	99% Percentile	0.511
95% HW Approx. Gamma UTL with	95% Coverage	0.54		
	95% WH USL	0.486	95% HW USL	0.535

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.869	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.219	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.083	90% Percentile (z)	0.153
	95% UPL (t)	0.353	95% Percentile (z)	0.276
	95% USL	1.064	99% Percentile (z)	0.835

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

	Order of Statistic, order	17	95% UTL with 95% Coverage	0.63
	Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.63	95% BCA Bootstrap UTL with 95% Coverage	0.63
	95% UPL	0.63	90% Percentile	0.112
	90% Chebyshev UPL	0.536	95% Percentile	0.23
	95% Chebyshev UPL	0.746	99% Percentile	0.55
	95% USL	0.63		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0033	First Quartile	0.005
Second Largest	0.13	Median	0.011
Maximum	0.63	Third Quartile	0.095
Mean	0.0715	SD	0.15
Coefficient of Variation	2.102	Skewness	3.574
Mean of logged Data	-3.963	SD of logged Data	1.626

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.484	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.325	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.445	90% Percentile (z)		0.264
	95% UPL (t)	0.342	95% Percentile (z)		0.319
	95% USL	0.444	99% Percentile (z)		0.421

Gamma GOF Test

A-D Test Statistic	1.335	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.802	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.261	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.221	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.482	k star (bias corrected MLE)	0.436
Theta hat (MLE)	0.148	Theta star (bias corrected MLE)	0.164
nu hat (MLE)	16.39	nu star (bias corrected)	14.83
MLE Mean (bias corrected)	0.0715	MLE Sd (bias corrected)	0.108

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.282	90% Percentile		0.199
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.286	95% Percentile		0.288
95% WH Approx. Gamma UTL with	95% Coverage	0.49	99% Percentile		0.511
95% HW Approx. Gamma UTL with	95% Coverage	0.54			
	95% WH USL	0.486	95% HW USL		0.535

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.869	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.219	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.083	90% Percentile (z)		0.153
	95% UPL (t)	0.353	95% Percentile (z)		0.276
	95% USL	1.064	99% Percentile (z)		0.835

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	0.63
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59

95% Percentile Bootstrap UTL with	95% Coverage	0.63	95% BCA Bootstrap UTL with	95% Coverage	0.63
	95% UPL	0.63		90% Percentile	0.112
	90% Chebyshev UPL	0.536		95% Percentile	0.23
	95% Chebyshev UPL	0.746		99% Percentile	0.55
	95% USL	0.63			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_fish_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	9.3000E-5	First Quartile	1.4000E-4
Second Largest	0.0036	Median	3.2000E-4
Maximum	0.017	Third Quartile	0.0027
Mean	0.00197	SD	0.00406
Coefficient of Variation	2.063	Skewness	3.53
Mean of logged Data	-7.543	SD of logged Data	1.629

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.493	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0121		90% Percentile (z)	0.00718
	95% UPL (t)	0.00927		95% Percentile (z)	0.00865
	95% USL	0.012		99% Percentile (z)	0.0114

Gamma GOF Test

A-D Test Statistic	1.298	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.801	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.254	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.221	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.486	k star (bias corrected MLE)	0.439
Theta hat (MLE)	0.00405	Theta star (bias corrected MLE)	0.00448
nu hat (MLE)	16.52	nu star (bias corrected)	14.94
MLE Mean (bias corrected)	0.00197	MLE Sd (bias corrected)	0.00297

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.00778	90% Percentile	0.00547
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.00793	95% Percentile	0.00792
95% WH Approx. Gamma UTL with 95% Coverage	0.0135	99% Percentile	0.014
95% HW Approx. Gamma UTL with 95% Coverage	0.0149		
95% WH USL	0.0134	95% HW USL	0.0148

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.871	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.217	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0304	90% Percentile (z)	0.00427
95% UPL (t)	0.00988	95% Percentile (z)	0.00772
95% USL	0.0298	99% Percentile (z)	0.0234

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.017
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.017	95% BCA Bootstrap UTL with 95% Coverage	0.017
95% UPL	0.017	90% Percentile	0.00318
90% Chebyshev UPL	0.0145	95% Percentile	0.00628
95% Chebyshev UPL	0.0202	99% Percentile	0.0149
95% USL	0.017		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (lead_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	3.2000E-4	First Quartile	5.3000E-4
Second Largest	0.014	Median	0.0011
Maximum	0.067	Third Quartile	0.0095
Mean	0.0075	SD	0.016
Coefficient of Variation	2.134	Skewness	3.588
Mean of logged Data	-6.25	SD of logged Data	1.643

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.481	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.327	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.0473	90% Percentile (z)	0.028
95% UPL (t)	0.0362	95% Percentile (z)	0.0338
95% USL	0.0471	99% Percentile (z)	0.0447

Gamma GOF Test

A-D Test Statistic	1.308	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.804	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.275	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.222	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.472	k star (bias corrected MLE)	0.428
Theta hat (MLE)	0.0159	Theta star (bias corrected MLE)	0.0175
nu hat (MLE)	16.06	nu star (bias corrected)	14.56
MLE Mean (bias corrected)	0.0075	MLE Sd (bias corrected)	0.0115

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0296	90% Percentile	0.0209
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.03	95% Percentile	0.0304
95% WH Approx. Gamma UTL with 95% Coverage	0.0517	99% Percentile	0.0542
95% HW Approx. Gamma UTL with 95% Coverage	0.0569		
95% WH USL	0.0512	95% HW USL	0.0564

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.877	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.222	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.115	90% Percentile (z)	0.0159
	95% UPL (t)	0.037	95% Percentile (z)	0.0288
	95% USL	0.113	99% Percentile (z)	0.0884

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with 95% Coverage	0.067
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
			Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with	95% Coverage	0.067	95% BCA Bootstrap UTL with 95% Coverage	0.067
	95% UPL	0.067	90% Percentile	0.0122
	90% Chebyshev UPL	0.0569	95% Percentile	0.0246
	95% Chebyshev UPL	0.0793	99% Percentile	0.0585
	95% USL	0.067		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (magnesium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	2410	First Quartile	3253
Second Largest	7190	Median	4000
Maximum	7350	Third Quartile	5333
Mean	4376	SD	1477
Coefficient of Variation	0.338	Skewness	0.783
Mean of logged Data	8.333	SD of logged Data	0.326

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.919	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.183	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	8000	90% Percentile (z)	6269
	95% UPL (t)	7016	95% Percentile (z)	6806
	95% USL	8075	99% Percentile (z)	7813

Gamma GOF Test

A-D Test Statistic	0.344	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.147	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	9.952	k star (bias corrected MLE)	8.331
Theta hat (MLE)	439.7	Theta star (bias corrected MLE)	525.3
nu hat (MLE)	358.3	nu star (bias corrected)	299.9
MLE Mean (bias corrected)	4376	MLE Sd (bias corrected)	1516

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		7247	90% Percentile	6397
95% Hawkins Wixley (HW) Approx. Gamma UPL		7290	95% Percentile	7131
95% WH Approx. Gamma UTL with	95% Coverage	8661	99% Percentile	8650
95% HW Approx. Gamma UTL with	95% Coverage	8785		
	95% WH USL	8777	95% HW USL	8908

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.964	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.125	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	9249	90% Percentile (z)	6314
	95% UPL (t)	7445	95% Percentile (z)	7107
	95% USL	9404	99% Percentile (z)	8875

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	7350
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7350	95% BCA Bootstrap UTL with 95% Coverage	7350
95% UPL	7350	90% Percentile	6420
90% Chebyshev UPL	8930	95% Percentile	7214
95% Chebyshev UPL	10992	99% Percentile	7323
95% USL	7350		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.48	Minimum Non-Detect	0.35
Maximum Detect	716	Maximum Non-Detect	1.49
Variance Detected	74180	Percent Non-Detects	22.22%
Mean Detected	265.7	SD Detected	272.4
Mean of Detected Logged Data	4.252	SD of Detected Logged Data	2.247

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.85	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	206.7	KM SD	256.4
95% UTL95% Coverage	835.7	95% KM UPL (t)	665
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.5

99% KM Percentile (z)	803.2	95% KM USL	848.8

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.8	SD	263.8
95% UTL95% Coverage	853.9	95% UPL (t)	678.3
90% Percentile (z)	544.9	95% Percentile (z)	640.7
99% Percentile (z)	820.5	95% USL	867.4

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.847	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.797	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.207	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.48	k star (bias corrected MLE)	0.425
Theta hat (MLE)	553.1	Theta star (bias corrected MLE)	625
nu hat (MLE)	13.45	nu star (bias corrected)	11.9
MLE Mean (bias corrected)	265.7		
MLE Sd (bias corrected)	407.5	95% Percentile of Chisquare (2kstar)	3.459

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2.48	Mean	208.4
Maximum	716	Median	22.45
SD	262.4	CV	1.259
k hat (MLE)	0.417	k star (bias corrected MLE)	0.384
Theta hat (MLE)	500.4	Theta star (bias corrected MLE)	542.6
nu hat (MLE)	15	nu star (bias corrected)	13.83
MLE Mean (bias corrected)	208.4	MLE Sd (bias corrected)	336.3
95% Percentile of Chisquare (2kstar)	3.237	90% Percentile	592.9
95% Percentile	878.2	99% Percentile	1599

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1619	2019	95% Approx. Gamma UPL	931	1043
95% Gamma USL	1683	2115			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	206.7	SD (KM)	256.4
Variance (KM)	65745	SE of Mean (KM)	62.72
k hat (KM)	0.65	k star (KM)	0.579
nu hat (KM)	23.4	nu star (KM)	20.84
theta hat (KM)	318	theta star (KM)	357.2
80% gamma percentile (KM)	340.7	90% gamma percentile (KM)	542
95% gamma percentile (KM)	753.6	99% gamma percentile (KM)	1267

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1702	2265	95% Approx. Gamma UPL	949.9	1108
95% KM Gamma Percentile	824.9	934.1	95% Gamma USL	1772	2381

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.831	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.248	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.8	Mean in Log Scale	3.174
SD in Original Scale	263.8	SD in Log Scale	2.858
95% UTL95% Coverage	26482	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3951
90% Percentile (z)	931.2	95% Percentile (z)	2630
99% Percentile (z)	18440	95% USL	30639

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.074	95% KM UTL (Lognormal)95% Coverage	27655
KM SD of Logged Data	2.916	95% KM UPL (Lognormal)	3968
95% KM Percentile Lognormal (z)	2620	95% KM USL (Lognormal)	32091

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.8	Mean in Log Scale	3.072
SD in Original Scale	263.8	SD in Log Scale	3.016
95% UTL95% Coverage	35262	95% UPL (t)	4735
90% Percentile (z)	1030	95% Percentile (z)	3081
99% Percentile (z)	24066	95% USL	41127

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	716
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1355

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	14	Number of Non-Detects	4
Number of Distinct Detects	14	Number of Distinct Non-Detects	4
Minimum Detect	2.48	Minimum Non-Detect	0.35
Maximum Detect	716	Maximum Non-Detect	1.49
Variance Detected	74180	Percent Non-Detects	22.22%
Mean Detected	265.7	SD Detected	272.4
Mean of Detected Logged Data	4.252	SD of Detected Logged Data	2.247

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.85	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	206.7	KM SD	256.4
95% UTL95% Coverage	835.7	95% KM UPL (t)	665
90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.5
99% KM Percentile (z)	803.2	95% KM USL	848.8

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.8	SD	263.8
95% UTL95% Coverage	853.9	95% UPL (t)	678.3
90% Percentile (z)	544.9	95% Percentile (z)	640.7

99% Percentile (z)	820.5	95% USL	867.4

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.847	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.797	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.207	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.48	k star (bias corrected MLE)	0.425
Theta hat (MLE)	553.1	Theta star (bias corrected MLE)	625
nu hat (MLE)	13.45	nu star (bias corrected)	11.9
MLE Mean (bias corrected)	265.7		
MLE Sd (bias corrected)	407.5	95% Percentile of Chisquare (2kstar)	3.459

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2.48	Mean	208.4
Maximum	716	Median	22.45
SD	262.4	CV	1.259
k hat (MLE)	0.417	k star (bias corrected MLE)	0.384
Theta hat (MLE)	500.4	Theta star (bias corrected MLE)	542.6
nu hat (MLE)	15	nu star (bias corrected)	13.83
MLE Mean (bias corrected)	208.4	MLE Sd (bias corrected)	336.3
95% Percentile of Chisquare (2kstar)	3.237	90% Percentile	592.9
95% Percentile	878.2	99% Percentile	1599

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1619	2019	95% Approx. Gamma UPL	931	1043
95% Gamma USL	1683	2115			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	206.7	SD (KM)	256.4
Variance (KM)	65745	SE of Mean (KM)	62.72
k hat (KM)	0.65	k star (KM)	0.579
nu hat (KM)	23.4	nu star (KM)	20.84
theta hat (KM)	318	theta star (KM)	357.2
80% gamma percentile (KM)	340.7	90% gamma percentile (KM)	542

95% gamma percentile (KM)	753.6	99% gamma percentile (KM)	1267

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1702	2265	95% Approx. Gamma UPL	949.9	1108
95% KM Gamma Percentile	824.9	934.1	95% Gamma USL	1772	2381

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.831	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.248	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.8	Mean in Log Scale	3.174
SD in Original Scale	263.8	SD in Log Scale	2.858
95% UTL95% Coverage	26482	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3951
90% Percentile (z)	931.2	95% Percentile (z)	2630
99% Percentile (z)	18440	95% USL	30639

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.074	95% KM UTL (Lognormal)95% Coverage	27655
KM SD of Logged Data	2.916	95% KM UPL (Lognormal)	3968
95% KM Percentile Lognormal (z)	2620	95% KM USL (Lognormal)	32091

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.8	Mean in Log Scale	3.072
SD in Original Scale	263.8	SD in Log Scale	3.016
95% UTL95% Coverage	35262	95% UPL (t)	4735
90% Percentile (z)	1030	95% Percentile (z)	3081
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Table C3-9
ProUCL Output for Porewater BTVs and BTV HQs, Approach F
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_concentration_fish_awqc)

General Statistics

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Number of Detects	14	Number of Non-Detects	4
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Detected Data appear Normal at 1% Significance Level

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90% KM Percentile (z)	535.3	95% KM Percentile (z)	628.5
99% KM Percentile (z)	803.2	95% KM USL	848.8

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	206.8	SD	263.8
95% UTL95% Coverage	853.9	95% UPL (t)	678.3
90% Percentile (z)	544.9	95% Percentile (z)	640.7
99% Percentile (z)	820.5	95% USL	867.4

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Gamma GOF Tests on Detected Observations Only

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Detected data follow Appr. Gamma Distribution at 5% Significance Level

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GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

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This is especially true when the sample size is small.

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Minimum	2.48	Mean	208.4
Maximum	716	Median	22.45
SD	262.4	CV	1.259
k hat (MLE)	0.417	k star (bias corrected MLE)	0.384
Theta hat (MLE)	500.4	Theta star (bias corrected MLE)	542.6
nu hat (MLE)	15	nu star (bias corrected)	13.83
MLE Mean (bias corrected)	208.4	MLE Sd (bias corrected)	336.3
95% Percentile of Chisquare (2kstar)	3.237	90% Percentile	592.9
95% Percentile	878.2	99% Percentile	1599

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1619	2019	95% Approx. Gamma UPL	931	1043
95% Gamma USL	1683	2115			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	206.7	SD (KM)	256.4
Variance (KM)	65745	SE of Mean (KM)	62.72
k hat (KM)	0.65	k star (KM)	0.579
nu hat (KM)	23.4	nu star (KM)	20.84
theta hat (KM)	318	theta star (KM)	357.2
80% gamma percentile (KM)	340.7	90% gamma percentile (KM)	542
95% gamma percentile (KM)	753.6	99% gamma percentile (KM)	1267

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1702	2265	95% Approx. Gamma UPL	949.9	1108

95% KM Gamma Percentile	824.9	934.1	95% Gamma USL	1772	2381

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.831	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.248	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	206.8	Mean in Log Scale	3.174
SD in Original Scale	263.8	SD in Log Scale	2.858
95% UTL95% Coverage	26482	95% BCA UTL95% Coverage	716
95% Bootstrap (%) UTL95% Coverage	716	95% UPL (t)	3951
90% Percentile (z)	931.2	95% Percentile (z)	2630
99% Percentile (z)	18440	95% USL	30639

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.074	95% KM UTL (Lognormal)95% Coverage	27655
KM SD of Logged Data	2.916	95% KM UPL (Lognormal)	3968
95% KM Percentile Lognormal (z)	2620	95% KM USL (Lognormal)	32091

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	206.8	Mean in Log Scale	3.072
SD in Original Scale	263.8	SD in Log Scale	3.016
95% UTL95% Coverage	35262	95% UPL (t)	4735
90% Percentile (z)	1030	95% Percentile (z)	3081
99% Percentile (z)	24066	95% USL	41127

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	716
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	716
95% USL	716	95% KM Chebyshev UPL	1355

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	2.2000E-4	First Quartile	0.002
Second Largest	0.39	Median	0.0113
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.242	Skewness	0.866
Mean of logged Data	-4.112	SD of logged Data	2.741

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.516	90% Percentile (z)	0.33
95% UPL (t)	0.41	95% Percentile (z)	0.388
95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.16	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.836	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.213	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.331	k star (bias corrected MLE)	0.313
Theta hat (MLE)	0.386	Theta star (bias corrected MLE)	0.408
nu hat (MLE)	11.9	nu star (bias corrected)	11.25
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.228

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.607	90% Percentile	0.374
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.707	95% Percentile	0.576
95% WH Approx. Gamma UTL with 95% Coverage	1.087	99% Percentile	1.096
95% HW Approx. Gamma UTL with 95% Coverage	1.437		
95% WH USL	1.131	95% HW USL	1.51

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	13.63	90% Percentile (z)	0.549
	95% UPL (t)	2.197	95% Percentile (z)	1.487
	95% USL	15.68	99% Percentile (z)	9.632

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	0.47
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.47	95% BCA Bootstrap UTL with	95% Coverage	0.47
	95% UPL	0.47		90% Percentile	0.334
	90% Chebyshev UPL	0.615		95% Percentile	0.402
	95% Chebyshev UPL	0.836		99% Percentile	0.456
	95% USL	0.47			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	2.2000E-5	First Quartile	1.6750E-4
Second Largest	0.044	Median	0.00139
Maximum	0.045	Third Quartile	0.0233
Mean	0.0129	SD	0.0165
Coefficient of Variation	1.28	Skewness	0.959
Mean of logged Data	-6.457	SD of logged Data	2.797

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.773	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.305	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0533	90% Percentile (z)	0.034
	95% UPL (t)	0.0424	95% Percentile (z)	0.04
	95% USL	0.0542	99% Percentile (z)	0.0512

Gamma GOF Test

A-D Test Statistic	0.974	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.837	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.21	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.323	k star (bias corrected MLE)	0.307
Theta hat (MLE)	0.0398	Theta star (bias corrected MLE)	0.042
nu hat (MLE)	11.65	nu star (bias corrected)	11.04
MLE Mean (bias corrected)	0.0129	MLE Sd (bias corrected)	0.0233

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0614	90% Percentile	0.0379
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0715	95% Percentile	0.0585
95% WH Approx. Gamma UTL with	95% Coverage	0.11	99% Percentile	0.112
95% HW Approx. Gamma UTL with	95% Coverage	0.146		
	95% WH USL	0.115	95% HW USL	0.153

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.211	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1.496	90% Percentile (z)	0.0565
	95% UPL (t)	0.233	95% Percentile (z)	0.156
	95% USL	1.726	99% Percentile (z)	1.05

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.045
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.045	95% BCA Bootstrap UTL with 95% Coverage	0.045
95% UPL	0.045	90% Percentile	0.0398
90% Chebyshev UPL	0.0637	95% Percentile	0.0442
95% Chebyshev UPL	0.0867	99% Percentile	0.0448
95% USL	0.045		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	2.2000E-4	First Quartile	0.002
Second Largest	0.39	Median	0.0113
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.242	Skewness	0.866
Mean of logged Data	-4.112	SD of logged Data	2.741

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.516	90% Percentile (z)	0.33
95% UPL (t)	0.41	95% Percentile (z)	0.388
95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.16	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.836	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.213	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.331	k star (bias corrected MLE)	0.313
Theta hat (MLE)	0.386	Theta star (bias corrected MLE)	0.408
nu hat (MLE)	11.9	nu star (bias corrected)	11.25
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.228

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.607	90% Percentile	0.374
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.707	95% Percentile	0.576
95% WH Approx. Gamma UTL with 95% Coverage	1.087	99% Percentile	1.096
95% HW Approx. Gamma UTL with 95% Coverage	1.437		
95% WH USL	1.131	95% HW USL	1.51

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	13.63	90% Percentile (z)	0.549
95% UPL (t)	2.197	95% Percentile (z)	1.487
95% USL	15.68	99% Percentile (z)	9.632

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.47	95% BCA Bootstrap UTL with 95% Coverage	0.47
95% UPL	0.47	90% Percentile	0.334
90% Chebyshev UPL	0.615	95% Percentile	0.402
95% Chebyshev UPL	0.836	99% Percentile	0.456
95% USL	0.47		

Table C3-9
ProUCL Output for Porewater BTVs and BTV HQs, Approach F
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (manganese_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	2.2000E-4	First Quartile	0.002
Second Largest	0.39	Median	0.0113
Maximum	0.47	Third Quartile	0.255
Mean	0.128	SD	0.158
Coefficient of Variation	1.242	Skewness	0.866
Mean of logged Data	-4.112	SD of logged Data	2.741

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.516	90% Percentile (z)	0.33
	95% UPL (t)	0.41	95% Percentile (z)	0.388
	95% USL	0.524	99% Percentile (z)	0.496

Gamma GOF Test

A-D Test Statistic	1.16	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.836	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.213	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.331	k star (bias corrected MLE)	0.313
Theta hat (MLE)	0.386	Theta star (bias corrected MLE)	0.408
nu hat (MLE)	11.9	nu star (bias corrected)	11.25
MLE Mean (bias corrected)	0.128	MLE Sd (bias corrected)	0.228

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.607	90% Percentile	0.374
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.707	95% Percentile	0.576
95% WH Approx. Gamma UTL with 95% Coverage	1.087	99% Percentile	1.096
95% HW Approx. Gamma UTL with 95% Coverage	1.437		
95% WH USL	1.131	95% HW USL	1.51

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	13.63	90% Percentile (z)	0.549
95% UPL (t)	2.197	95% Percentile (z)	1.487
95% USL	15.68	99% Percentile (z)	9.632

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.47	95% BCA Bootstrap UTL with 95% Coverage	0.47
95% UPL	0.47	90% Percentile	0.334
90% Chebyshev UPL	0.615	95% Percentile	0.402
95% Chebyshev UPL	0.836	99% Percentile	0.456
95% USL	0.47		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (ph_su_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Minimum	6.65	First Quartile	6.838
Second Largest	7.33	Median	7.03
Maximum	7.44	Third Quartile	7.173

Mean	7.013	SD	0.237
Coefficient of Variation	0.0338	Skewness	-0.0203
Mean of logged Data	1.947	SD of logged Data	0.0338

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.961	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	7.595	90% Percentile (z)	7.317
	95% UPL (t)	7.437	95% Percentile (z)	7.403
	95% USL	7.607	99% Percentile (z)	7.565

Gamma GOF Test

A-D Test Statistic	0.281	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.737	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.134	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	925.3	k star (bias corrected MLE)	771.1
Theta hat (MLE)	0.00758	Theta star (bias corrected MLE)	0.00909
nu hat (MLE)	33311	nu star (bias corrected)	27761
MLE Mean (bias corrected)	7.013	MLE Sd (bias corrected)	0.253

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		7.443	90% Percentile	7.339
95% Hawkins Wixley (HW) Approx. Gamma UPL		7.444	95% Percentile	7.434
95% WH Approx. Gamma UTL with	95% Coverage	7.609	99% Percentile	7.614
95% HW Approx. Gamma UTL with	95% Coverage	7.611		
	95% WH USL	7.622	95% HW USL	7.624

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.96	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.132	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	7.616	90% Percentile (z)		7.32
	95% UPL (t)	7.447	95% Percentile (z)		7.411
	95% USL	7.629	99% Percentile (z)		7.584

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		18	95% UTL with	95% Coverage	7.44
Approx, f used to compute achieved CC		0.947	Approximate Actual Confidence Coefficient achieved by UTL		0.603
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	7.44	95% BCA Bootstrap UTL with	95% Coverage	7.44
	95% UPL	7.44		90% Percentile	7.288
	90% Chebyshev UPL	7.744		95% Percentile	7.347
	95% Chebyshev UPL	8.075		99% Percentile	7.421
	95% USL	7.44			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (potassium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Minimum	700	First Quartile	800
Second Largest	2700	Median	1280
Maximum	2880	Third Quartile	2000
Mean	1501	SD	753.4
Coefficient of Variation	0.502	Skewness	0.59
Mean of logged Data	7.193	SD of logged Data	0.509

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.881	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	3374	90% Percentile (z)	2467
	95% UPL (t)	2855	95% Percentile (z)	2740
	95% USL	3366	99% Percentile (z)	3254

Gamma GOF Test

A-D Test Statistic	0.654	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.193	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.21	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.309	k star (bias corrected MLE)	3.588
Theta hat (MLE)	348.4	Theta star (bias corrected MLE)	418.4
nu hat (MLE)	146.5	nu star (bias corrected)	122
MLE Mean (bias corrected)	1501	MLE Sd (bias corrected)	792.6

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3088	90% Percentile	2564
95% Hawkins Wixley (HW) Approx. Gamma UPL	3135	95% Percentile	2996
95% WH Approx. Gamma UTL with	95% Coverage	3998	99% Percentile	3925
95% HW Approx. Gamma UTL with	95% Coverage	4135		
	95% WH USL	3982	95% HW USL	4117

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.899	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.188	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	4717	90% Percentile (z)	2555
	95% UPL (t)	3321	95% Percentile (z)	3074
	95% USL	4690	99% Percentile (z)	4348

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with	95% Coverage	2880
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
		Approximate Sample Size needed to achieve specified CC		59

95% Percentile Bootstrap UTL with	95% Coverage	2880	95% BCA Bootstrap UTL with	95% Coverage	2880
	95% UPL	2880		90% Percentile	2658
	90% Chebyshev UPL	3827		95% Percentile	2736
	95% Chebyshev UPL	4880		99% Percentile	2851
	95% USL	2880			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sodium_ug/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	16	Number of Non-Detects	2
Number of Distinct Detects	15	Number of Distinct Non-Detects	2
Minimum Detect	1350	Minimum Non-Detect	690
Maximum Detect	4940	Maximum Non-Detect	880
Variance Detected	1167113	Percent Non-Detects	11.11%
Mean Detected	2479	SD Detected	1080
Mean of Detected Logged Data	7.739	SD of Detected Logged Data	0.391

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.834	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2281	KM SD	1135
95% UTL95% Coverage	5065	95% KM UPL (t)	4310
90% KM Percentile (z)	3735	95% KM Percentile (z)	4148
99% KM Percentile (z)	4922	95% KM USL	5123

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2248	SD	1219
95% UTL95% Coverage	5237	95% UPL (t)	4426
90% Percentile (z)	3809	95% Percentile (z)	4252

99% Percentile (z)	5083	95% USL	5299

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.864	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.741	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.22	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.216	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	6.678	k star (bias corrected MLE)	5.467
Theta hat (MLE)	371.3	Theta star (bias corrected MLE)	453.5
nu hat (MLE)	213.7	nu star (bias corrected)	175
MLE Mean (bias corrected)	2479		
MLE Sd (bias corrected)	1060	95% Percentile of Chisquare (2kstar)	19.59

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	509.2	Mean	2260
Maximum	4940	Median	1925
SD	1198	CV	0.53
k hat (MLE)	3.455	k star (bias corrected MLE)	2.916
Theta hat (MLE)	654.3	Theta star (bias corrected MLE)	775.2
nu hat (MLE)	124.4	nu star (bias corrected)	105
MLE Mean (bias corrected)	2260	MLE Sd (bias corrected)	1324
95% Percentile of Chisquare (2kstar)	12.34	90% Percentile	4035
95% Percentile	4783	99% Percentile	6406

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	6469	6823	95% Approx. Gamma UPL	4935	5081
95% Gamma USL	6598	6973			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2281	SD (KM)	1135
Variance (KM)	1288827	SE of Mean (KM)	276.4
k hat (KM)	4.035	k star (KM)	3.4
nu hat (KM)	145.3	nu star (KM)	122.4
theta hat (KM)	565.1	theta star (KM)	670.8
80% gamma percentile (KM)	3205	90% gamma percentile (KM)	3939

95% gamma percentile (KM)	4620	99% gamma percentile (KM)	6086

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5943	6162	95% Approx. Gamma UPL	4634	4718
95% KM Gamma Percentile	4382	4445	95% Gamma USL	6052	6285

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.907	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.906	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.201	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.196	Data Not Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2308	Mean in Log Scale	7.639
SD in Original Scale	1131	SD in Log Scale	0.468
95% UTL95% Coverage	6556	95% BCA UTL95% Coverage	4940
95% Bootstrap (%) UTL95% Coverage	4940	95% UPL (t)	4799
90% Percentile (z)	3787	95% Percentile (z)	4490
99% Percentile (z)	6178	95% USL	6714

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	7.605	95% KM UTL (Lognormal)95% Coverage	7185
KM SD of Logged Data	0.519	95% KM UPL (Lognormal)	5084
95% KM Percentile Lognormal (z)	4722	95% KM USL (Lognormal)	7378

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2248	Mean in Log Scale	7.542
SD in Original Scale	1219	SD in Log Scale	0.682
95% UTL95% Coverage	10050	95% UPL (t)	6382
90% Percentile (z)	4520	95% Percentile (z)	5791
99% Percentile (z)	9218	95% USL	10406

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	18	95% UTL with95% Coverage	4940
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
Approximate Sample Size needed to achieve specified CC	59	95% UPL	4940
95% USL	4940	95% KM Chebyshev UPL	7365

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (sulfate_mg/l_concentration_na_na)

General Statistics

Total Number of Observations	18	Number of Distinct Observations	18
Minimum	3.83	First Quartile	9.303
Second Largest	28.5	Median	12.45
Maximum	35.4	Third Quartile	20.2
Mean	15.66	SD	8.692
Coefficient of Variation	0.555	Skewness	0.793
Mean of logged Data	2.597	SD of logged Data	0.591

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.453	d2max (for USL)	2.504

Normal GOF Test

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.858	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.235	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	36.98	90% Percentile (z)	26.8
	95% UPL (t)	31.19	95% Percentile (z)	29.95
	95% USL	37.42	99% Percentile (z)	35.88

Gamma GOF Test

A-D Test Statistic	0.206	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.136	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.205	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.406	k star (bias corrected MLE)	2.876
Theta hat (MLE)	4.596	Theta star (bias corrected MLE)	5.444
nu hat (MLE)	122.6	nu star (bias corrected)	103.5
MLE Mean (bias corrected)	15.66	MLE Sd (bias corrected)	9.233

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	34.35	90% Percentile	28.03
95% Hawkins Wixley (HW) Approx. Gamma UPL	35.13	95% Percentile	33.26
95% WH Approx. Gamma UTL with 95% Coverage	45.12	99% Percentile	44.62
95% HW Approx. Gamma UTL with 95% Coverage	47.19		
95% WH USL	46.03	95% HW USL	48.23

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.978	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.111	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.185	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	57.16	90% Percentile (z)	28.61
95% UPL (t)	38.58	95% Percentile (z)	35.46
95% USL	58.91	99% Percentile (z)	53.04

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	18	95% UTL with 95% Coverage	35.4
Approx, f used to compute achieved CC	0.947	Approximate Actual Confidence Coefficient achieved by UTL	0.603
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	35.4	95% BCA Bootstrap UTL with 95% Coverage	35.4
95% UPL	35.4	90% Percentile	27.24
90% Chebyshev UPL	42.45	95% Percentile	29.54
95% Chebyshev UPL	54.58	99% Percentile	34.23
95% USL	35.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	3	Number of Distinct Non-Detects	11

Minimum Detect	3.3	Minimum Non-Detect	0.3
Maximum Detect	6	Maximum Non-Detect	1.7
Variance Detected	1.223	Percent Non-Detects	76.47%
Mean Detected	4.575	SD Detected	1.106
Mean of Detected Logged Data	1.498	SD of Detected Logged Data	0.244

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.306	KM SD	1.872
95% UTL95% Coverage	5.959	95% KM UPL (t)	4.669
90% KM Percentile (z)	3.705	95% KM Percentile (z)	4.385
99% KM Percentile (z)	5.661	95% KM USL	5.939

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.447	SD	1.86
95% UTL95% Coverage	6.072	95% UPL (t)	4.789
90% Percentile (z)	3.831	95% Percentile (z)	4.507
99% Percentile (z)	5.775	95% USL	6.051

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.331	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.253	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	22.74	k star (bias corrected MLE)	5.852
Theta hat (MLE)	0.201	Theta star (bias corrected MLE)	0.782
nu hat (MLE)	181.9	nu star (bias corrected)	46.82
MLE Mean (bias corrected)	4.575		
MLE Sd (bias corrected)	1.891	95% Percentile of Chisquare (2kstar)	20.63

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.345
Maximum	6	Median	0.275
SD	1.934	CV	1.438
k hat (MLE)	0.602	k star (bias corrected MLE)	0.535
Theta hat (MLE)	2.234	Theta star (bias corrected MLE)	2.514
nu hat (MLE)	20.47	nu star (bias corrected)	18.19
MLE Mean (bias corrected)	1.345	MLE Sd (bias corrected)	1.838
95% Percentile of Chisquare (2kstar)	4.012	90% Percentile	3.587
95% Percentile	5.042	99% Percentile	8.6

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	8.717	9.85	95% Approx. Gamma UPL	5.214	5.458
95% Gamma USL	8.65	9.763			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.306	SD (KM)	1.872
Variance (KM)	3.504	SE of Mean (KM)	0.524
k hat (KM)	0.487	k star (KM)	0.44
nu hat (KM)	16.55	nu star (KM)	14.96
theta hat (KM)	2.683	theta star (KM)	2.968
80% gamma percentile (KM)	2.128	90% gamma percentile (KM)	3.624
95% gamma percentile (KM)	5.249	99% gamma percentile (KM)	9.293

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.371	7.773	95% Approx. Gamma UPL	4.543	4.527
95% KM Gamma Percentile	4.038	3.977	95% Gamma USL	7.317	7.709

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.259	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2.294	Mean in Log Scale	0.701
SD in Original Scale	1.404	SD in Log Scale	0.485
95% UTL95% Coverage	6.731	95% BCA UTL95% Coverage	6

95% Bootstrap (%) UTL95% Coverage	6	95% UPL (t)	4.817
90% Percentile (z)	3.752	95% Percentile (z)	4.476
99% Percentile (z)	6.23	95% USL	6.695

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.568	95% KM UTL (Lognormal)95% Coverage	9.905
KM SD of Logged Data	1.151	95% KM UPL (Lognormal)	4.479
95% KM Percentile Lognormal (z)	3.762	95% KM USL (Lognormal)	9.778

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.447	Mean in Log Scale	-0.278
SD in Original Scale	1.86	SD in Log Scale	1.105
95% UTL95% Coverage	11.82	95% UPL (t)	5.515
90% Percentile (z)	3.122	95% Percentile (z)	4.664
99% Percentile (z)	9.905	95% USL	11.67

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	6
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	6
95% USL	6	95% KM Chebyshev UPL	9.702

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	3	Number of Distinct Non-Detects	11
Minimum Detect	3.3	Minimum Non-Detect	0.3
Maximum Detect	6	Maximum Non-Detect	1.7
Variance Detected	1.223	Percent Non-Detects	76.47%
Mean Detected	4.575	SD Detected	1.106
Mean of Detected Logged Data	1.498	SD of Detected Logged Data	0.244

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.306	KM SD	1.872
95% UTL95% Coverage	5.959	95% KM UPL (t)	4.669
90% KM Percentile (z)	3.705	95% KM Percentile (z)	4.385
99% KM Percentile (z)	5.661	95% KM USL	5.939

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.447	SD	1.86
95% UTL95% Coverage	6.072	95% UPL (t)	4.789
90% Percentile (z)	3.831	95% Percentile (z)	4.507
99% Percentile (z)	5.775	95% USL	6.051

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.331	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.253	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	22.74	k star (bias corrected MLE)	5.852
Theta hat (MLE)	0.201	Theta star (bias corrected MLE)	0.782
nu hat (MLE)	181.9	nu star (bias corrected)	46.82
MLE Mean (bias corrected)	4.575		
MLE Sd (bias corrected)	1.891	95% Percentile of Chisquare (2kstar)	20.63

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.345
Maximum	6	Median	0.275

SD	1.934	CV	1.438
k hat (MLE)	0.602	k star (bias corrected MLE)	0.535
Theta hat (MLE)	2.234	Theta star (bias corrected MLE)	2.514
nu hat (MLE)	20.47	nu star (bias corrected)	18.19
MLE Mean (bias corrected)	1.345	MLE Sd (bias corrected)	1.838
95% Percentile of Chisquare (2kstar)	4.012	90% Percentile	3.587
95% Percentile	5.042	99% Percentile	8.6

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	8.717	9.85	95% Approx. Gamma UPL	5.214	5.458
95% Gamma USL	8.65	9.763			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.306	SD (KM)	1.872
Variance (KM)	3.504	SE of Mean (KM)	0.524
k hat (KM)	0.487	k star (KM)	0.44
nu hat (KM)	16.55	nu star (KM)	14.96
theta hat (KM)	2.683	theta star (KM)	2.968
80% gamma percentile (KM)	2.128	90% gamma percentile (KM)	3.624
95% gamma percentile (KM)	5.249	99% gamma percentile (KM)	9.293

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.371	7.773	95% Approx. Gamma UPL	4.543	4.527
95% KM Gamma Percentile	4.038	3.977	95% Gamma USL	7.317	7.709

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.259	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2.294	Mean in Log Scale	0.701
SD in Original Scale	1.404	SD in Log Scale	0.485
95% UTL95% Coverage	6.731	95% BCA UTL95% Coverage	6
95% Bootstrap (%) UTL95% Coverage	6	95% UPL (t)	4.817
90% Percentile (z)	3.752	95% Percentile (z)	4.476
99% Percentile (z)	6.23	95% USL	6.695

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.568	95% KM UTL (Lognormal)95% Coverage	9.905

KM SD of Logged Data	1.151	95% KM UPL (Lognormal)	4.479
95% KM Percentile Lognormal (z)	3.762	95% KM USL (Lognormal)	9.778

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.447	Mean in Log Scale	-0.278
SD in Original Scale	1.86	SD in Log Scale	1.105
95% UTL95% Coverage	11.82	95% UPL (t)	5.515
90% Percentile (z)	3.122	95% Percentile (z)	4.664
99% Percentile (z)	9.905	95% USL	11.67

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	6
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	6
95% USL	6	95% KM Chebyshev UPL	9.702

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_concentration_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	4	Number of Non-Detects	13
Number of Distinct Detects	3	Number of Distinct Non-Detects	11
Minimum Detect	3.3	Minimum Non-Detect	0.3
Maximum Detect	6	Maximum Non-Detect	1.7
Variance Detected	1.223	Percent Non-Detects	76.47%
Mean Detected	4.575	SD Detected	1.106
Mean of Detected Logged Data	1.498	SD of Detected Logged Data	0.244

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level	

Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.413	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.306	KM SD	1.872
95% UTL95% Coverage	5.959	95% KM UPL (t)	4.669
90% KM Percentile (z)	3.705	95% KM Percentile (z)	4.385
99% KM Percentile (z)	5.661	95% KM USL	5.939

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.447	SD	1.86
95% UTL95% Coverage	6.072	95% UPL (t)	4.789
90% Percentile (z)	3.831	95% Percentile (z)	4.507
99% Percentile (z)	5.775	95% USL	6.051

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.331	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.253	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	22.74	k star (bias corrected MLE)	5.852
Theta hat (MLE)	0.201	Theta star (bias corrected MLE)	0.782
nu hat (MLE)	181.9	nu star (bias corrected)	46.82
MLE Mean (bias corrected)	4.575		
MLE Sd (bias corrected)	1.891	95% Percentile of Chisquare (2kstar)	20.63

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.345
Maximum	6	Median	0.275
SD	1.934	CV	1.438
k hat (MLE)	0.602	k star (bias corrected MLE)	0.535
Theta hat (MLE)	2.234	Theta star (bias corrected MLE)	2.514
nu hat (MLE)	20.47	nu star (bias corrected)	18.19
MLE Mean (bias corrected)	1.345	MLE Sd (bias corrected)	1.838
95% Percentile of Chisquare (2kstar)	4.012	90% Percentile	3.587

95% Percentile	5.042	99% Percentile	8.6

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	8.717	9.85	95% Approx. Gamma UPL	5.214	5.458
95% Gamma USL	8.65	9.763			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.306	SD (KM)	1.872
Variance (KM)	3.504	SE of Mean (KM)	0.524
k hat (KM)	0.487	k star (KM)	0.44
nu hat (KM)	16.55	nu star (KM)	14.96
theta hat (KM)	2.683	theta star (KM)	2.968
80% gamma percentile (KM)	2.128	90% gamma percentile (KM)	3.624
95% gamma percentile (KM)	5.249	99% gamma percentile (KM)	9.293

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.371	7.773	95% Approx. Gamma UPL	4.543	4.527
95% KM Gamma Percentile	4.038	3.977	95% Gamma USL	7.317	7.709

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.792	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.259	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.346	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2.294	Mean in Log Scale	0.701
SD in Original Scale	1.404	SD in Log Scale	0.485
95% UTL95% Coverage	6.731	95% BCA UTL95% Coverage	6
95% Bootstrap (%) UTL95% Coverage	6	95% UPL (t)	4.817
90% Percentile (z)	3.752	95% Percentile (z)	4.476
99% Percentile (z)	6.23	95% USL	6.695

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.568	95% KM UTL (Lognormal)95% Coverage	9.905
KM SD of Logged Data	1.151	95% KM UPL (Lognormal)	4.479
95% KM Percentile Lognormal (z)	3.762	95% KM USL (Lognormal)	9.778

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.447	Mean in Log Scale	-0.278
SD in Original Scale	1.86	SD in Log Scale	1.105

95% UTL95% Coverage	11.82	95% UPL (t)	5.515
90% Percentile (z)	3.122	95% Percentile (z)	4.664
99% Percentile (z)	9.905	95% USL	11.67

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	17	95% UTL with95% Coverage	6
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
Approximate Sample Size needed to achieve specified CC	59	95% UPL	6
95% USL	6	95% KM Chebyshev UPL	9.702

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_aquatic plants_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0025	First Quartile	0.0075
Second Largest	0.055	Median	0.012
Maximum	0.061	Third Quartile	0.027
Mean	0.0208	SD	0.0196
Coefficient of Variation	0.943	Skewness	1.143
Mean of logged Data	-4.286	SD of logged Data	0.947

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.789	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.262	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0696	90% Percentile (z)	0.046
	95% UPL (t)	0.0561	95% Percentile (z)	0.0531
	95% USL	0.0694	99% Percentile (z)	0.0665

Gamma GOF Test

A-D Test Statistic	0.714	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.759	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.201	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.35	k star (bias corrected MLE)	1.151
Theta hat (MLE)	0.0154	Theta star (bias corrected MLE)	0.0181
nu hat (MLE)	45.9	nu star (bias corrected)	39.13
MLE Mean (bias corrected)	0.0208	MLE Sd (bias corrected)	0.0194

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0626	90% Percentile	0.0463
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0646	95% Percentile	0.0594
95% WH Approx. Gamma UTL with 95% Coverage	0.093	99% Percentile	0.0894
95% HW Approx. Gamma UTL with 95% Coverage	0.1		
95% WH USL	0.0924	95% HW USL	0.0996

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.946	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.146	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.145	90% Percentile (z)	0.0464
95% UPL (t)	0.0755	95% Percentile (z)	0.0654
95% USL	0.144	99% Percentile (z)	0.125

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.061
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.061	95% BCA Bootstrap UTL with 95% Coverage	0.061
95% UPL	0.061	90% Percentile	0.052
90% Chebyshev UPL	0.0814	95% Percentile	0.0562
95% Chebyshev UPL	0.109	99% Percentile	0.06
95% USL	0.061		

Table C3-9
ProUCL Output for Porewater BTVs and BTV HQs, Approach F
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	14
Minimum	0.0019	First Quartile	0.0044
Second Largest	0.028	Median	0.0075
Maximum	0.038	Third Quartile	0.011
Mean	0.0114	SD	0.0106
Coefficient of Variation	0.929	Skewness	1.509
Mean of logged Data	-4.816	SD of logged Data	0.834

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.769	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.282	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0378	90% Percentile (z)	0.025
	95% UPL (t)	0.0305	95% Percentile (z)	0.0289
	95% USL	0.0377	99% Percentile (z)	0.0361

Gamma GOF Test

A-D Test Statistic	0.812	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.754	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.193	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.213	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.596	k star (bias corrected MLE)	1.354
Theta hat (MLE)	0.00716	Theta star (bias corrected MLE)	0.00844
nu hat (MLE)	54.26	nu star (bias corrected)	46.02
MLE Mean (bias corrected)	0.0114	MLE Sd (bias corrected)	0.00982

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0322	90% Percentile	0.0244
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0329	95% Percentile	0.0308
95% WH Approx. Gamma UTL with 95% Coverage	0.0468	99% Percentile	0.0454
95% HW Approx. Gamma UTL with 95% Coverage	0.0495		
95% WH USL	0.0466	95% HW USL	0.0492

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.135	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.0644	90% Percentile (z)	0.0236
95% UPL (t)	0.0362	95% Percentile (z)	0.0319
95% USL	0.0638	99% Percentile (z)	0.0564

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.038
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.038	95% BCA Bootstrap UTL with 95% Coverage	0.038
95% UPL	0.038	90% Percentile	0.028
90% Chebyshev UPL	0.0442	95% Percentile	0.03
95% Chebyshev UPL	0.059	99% Percentile	0.0364
95% USL	0.038		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_bmi_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0025	First Quartile	0.0075
Second Largest	0.055	Median	0.012

Maximum	0.061	Third Quartile	0.027
Mean	0.0208	SD	0.0196
Coefficient of Variation	0.943	Skewness	1.143
Mean of logged Data	-4.286	SD of logged Data	0.947

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.789	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.262	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0696	90% Percentile (z)	0.046
	95% UPL (t)	0.0561	95% Percentile (z)	0.0531
	95% USL	0.0694	99% Percentile (z)	0.0665

Gamma GOF Test

A-D Test Statistic	0.714	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.759	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.201	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.35	k star (bias corrected MLE)	1.151
Theta hat (MLE)	0.0154	Theta star (bias corrected MLE)	0.0181
nu hat (MLE)	45.9	nu star (bias corrected)	39.13
MLE Mean (bias corrected)	0.0208	MLE Sd (bias corrected)	0.0194

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0626	90% Percentile	0.0463
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0646	95% Percentile	0.0594
95% WH Approx. Gamma UTL with	95% Coverage	0.093	99% Percentile	0.0894
95% HW Approx. Gamma UTL with	95% Coverage	0.1		
	95% WH USL	0.0924	95% HW USL	0.0996

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.946	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.146	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.145	90% Percentile (z)		0.0464
	95% UPL (t)	0.0755	95% Percentile (z)		0.0654
	95% USL	0.144	99% Percentile (z)		0.125

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		17	95% UTL with	95% Coverage	0.061
Approx, f used to compute achieved CC		0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.061	95% BCA Bootstrap UTL with	95% Coverage	0.061
	95% UPL	0.061		90% Percentile	0.052
	90% Chebyshev UPL	0.0814		95% Percentile	0.0562
	95% Chebyshev UPL	0.109		99% Percentile	0.06
	95% USL	0.061			

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concDL (zinc_ug/l_hq_signif_fish_awqc)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0025	First Quartile	0.0075
Second Largest	0.055	Median	0.012
Maximum	0.061	Third Quartile	0.027
Mean	0.0208	SD	0.0196
Coefficient of Variation	0.943	Skewness	1.143
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Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.789	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.262	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0696	90% Percentile (z)		0.046
	95% UPL (t)	0.0561	95% Percentile (z)		0.0531
	95% USL	0.0694	99% Percentile (z)		0.0665

Gamma GOF Test

A-D Test Statistic	0.714	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.759	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.201	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.35	k star (bias corrected MLE)	1.151
Theta hat (MLE)	0.0154	Theta star (bias corrected MLE)	0.0181
nu hat (MLE)	45.9	nu star (bias corrected)	39.13
MLE Mean (bias corrected)	0.0208	MLE Sd (bias corrected)	0.0194

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0626	90% Percentile	0.0463
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0646	95% Percentile	0.0594
95% WH Approx. Gamma UTL with 95% Coverage	0.093	99% Percentile	0.0894
95% HW Approx. Gamma UTL with 95% Coverage	0.1		
95% WH USL	0.0924	95% HW USL	0.0996

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.946	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.146	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.145	90% Percentile (z)		0.0464
	95% UPL (t)	0.0755	95% Percentile (z)		0.0654
	95% USL	0.144	99% Percentile (z)		0.125

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with	95% Coverage	0.061
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL		0.582

			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.061	95% BCA Bootstrap UTL with	95% Coverage	0.061
	95% UPL	0.061		90% Percentile	0.052
	90% Chebyshev UPL	0.0814		95% Percentile	0.0562
	95% Chebyshev UPL	0.109		99% Percentile	0.06
	95% USL	0.061			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

concDL (zinc_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	16
Minimum	0.0019	First Quartile	0.0055
Second Largest	0.043	Median	0.0088
Maximum	0.046	Third Quartile	0.021
Mean	0.0159	SD	0.015
Coefficient of Variation	0.945	Skewness	1.131
Mean of logged Data	-4.558	SD of logged Data	0.952

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.486	d2max (for USL)	2.475

Normal GOF Test

Shapiro Wilk Test Statistic	0.786	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.261	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	0.0533	90% Percentile (z)		0.0352
	95% UPL (t)	0.043	95% Percentile (z)		0.0407
	95% USL	0.0532	99% Percentile (z)		0.0509

Gamma GOF Test

A-D Test Statistic	0.742	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.759	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.198	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.339	k star (bias corrected MLE)	1.142
Theta hat (MLE)	0.0119	Theta star (bias corrected MLE)	0.0139
nu hat (MLE)	45.51	nu star (bias corrected)	38.81
MLE Mean (bias corrected)	0.0159	MLE Sd (bias corrected)	0.0149

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.048	90% Percentile	0.0355
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0496	95% Percentile	0.0455
95% WH Approx. Gamma UTL with 95% Coverage	0.0714	99% Percentile	0.0686
95% HW Approx. Gamma UTL with 95% Coverage	0.077		
95% WH USL	0.0709	95% HW USL	0.0765

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.143	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.19	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.112	90% Percentile (z)	0.0355
95% UPL (t)	0.0579	95% Percentile (z)	0.0501
95% USL	0.11	99% Percentile (z)	0.0959

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	17	95% UTL with 95% Coverage	0.046
Approx, f used to compute achieved CC	0.895	Approximate Actual Confidence Coefficient achieved by UTL	0.582
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.046	95% BCA Bootstrap UTL with 95% Coverage	0.046
95% UPL	0.046	90% Percentile	0.04
90% Chebyshev UPL	0.0624	95% Percentile	0.0436
95% Chebyshev UPL	0.0834	99% Percentile	0.0455
95% USL	0.046		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Table C3-10
ProUCL Outlier Test for Porewater for Approach B
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit

User Selected Options

Date/Time of Computation ProUCL 5.2 9/14/2023 1:09:19 PM
From File porewater_utl_input_base.xls
Full Precision OFF

Dixon's Outlier Test for concDL (alkalinity_mg/l_na_concentration_na)

Total N = 21
Number NDs = 0
Number Detects = 21
Number Data (n) = 21
10% critical value: 0.391
5% critical value: 0.44
1% critical value: 0.524
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 134 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.291

For 10% significance level, 134 is not an outlier.
For 5% significance level, 134 is not an outlier.
For 1% significance level, 134 is not an outlier.

2. Data Value 47 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.125

For 10% significance level, 47 is not an outlier.
For 5% significance level, 47 is not an outlier.
For 1% significance level, 47 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_awqc_concentration_aquatic plants)

Total N = 22
Number NDs = 14
Number Detects = 8
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 265 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.466

For 10% significance level, 265 is an outlier.
For 5% significance level, 265 is an outlier.
For 1% significance level, 265 is not an outlier.

2. Data Value 2 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.007

For 10% significance level, 2 is not an outlier.
For 5% significance level, 2 is not an outlier.
For 1% significance level, 2 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_awqc_concentration_bmi)

Total N = 22
Number NDs = 14
Number Detects = 8
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 265 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.466

For 10% significance level, 265 is an outlier.
For 5% significance level, 265 is an outlier.
For 1% significance level, 265 is not an outlier.

2. Data Value 2 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.007

For 10% significance level, 2 is not an outlier.
For 5% significance level, 2 is not an outlier.
For 1% significance level, 2 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_awqc_concentration_fish)

Total N = 22
Number NDs = 14
Number Detects = 8
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 265 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.466

For 10% significance level, 265 is an outlier.
For 5% significance level, 265 is an outlier.
For 1% significance level, 265 is not an outlier.

2. Data Value 2 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.007

For 10% significance level, 2 is not an outlier.
For 5% significance level, 2 is not an outlier.
For 1% significance level, 2 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_awqc_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.43 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.461

For 10% significance level, 0.43 is an outlier.
For 5% significance level, 0.43 is an outlier.
For 1% significance level, 0.43 is not an outlier.

2. Data Value 0.012 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.026

For 10% significance level, 0.012 is not an outlier.
For 5% significance level, 0.012 is not an outlier.
For 1% significance level, 0.012 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_awqc_hq_signif_bmi)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.43 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.461

For 10% significance level, 0.43 is an outlier.
For 5% significance level, 0.43 is an outlier.
For 1% significance level, 0.43 is not an outlier.

2. Data Value 0.012 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.026

For 10% significance level, 0.012 is not an outlier.
For 5% significance level, 0.012 is not an outlier.
For 1% significance level, 0.012 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_awqc_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.43 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.461

For 10% significance level, 0.43 is an outlier.
For 5% significance level, 0.43 is an outlier.

For 1% significance level, 0.43 is not an outlier.

2. Data Value 0.012 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.026

For 10% significance level, 0.012 is not an outlier.
For 5% significance level, 0.012 is not an outlier.
For 1% significance level, 0.012 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.065 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.472

For 10% significance level, 0.065 is an outlier.
For 5% significance level, 0.065 is an outlier.
For 1% significance level, 0.065 is not an outlier.

2. Data Value 0.00098 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.012

For 10% significance level, 0.00098 is not an outlier.
For 5% significance level, 0.00098 is not an outlier.
For 1% significance level, 0.00098 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_awqc_concentration_aquatic plants)

Total N = 22
Number NDs = 13
Number Detects = 9
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.736 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.219

For 10% significance level, 0.736 is not an outlier.
For 5% significance level, 0.736 is not an outlier.
For 1% significance level, 0.736 is not an outlier.

2. Data Value 0.038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.081

For 10% significance level, 0.038 is not an outlier.
For 5% significance level, 0.038 is not an outlier.

For 1% significance level, 0.038 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_awqc_concentration_bmi)

Total N = 22
Number NDs = 13
Number Detects = 9
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.736 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.219

For 10% significance level, 0.736 is not an outlier.
For 5% significance level, 0.736 is not an outlier.
For 1% significance level, 0.736 is not an outlier.

2. Data Value 0.038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.081

For 10% significance level, 0.038 is not an outlier.
For 5% significance level, 0.038 is not an outlier.
For 1% significance level, 0.038 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_awqc_concentration_fish)

Total N = 22
Number NDs = 13
Number Detects = 9
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.736 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.219

For 10% significance level, 0.736 is not an outlier.
For 5% significance level, 0.736 is not an outlier.
For 1% significance level, 0.736 is not an outlier.

2. Data Value 0.038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.081

For 10% significance level, 0.038 is not an outlier.
For 5% significance level, 0.038 is not an outlier.
For 1% significance level, 0.038 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_awqc_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22

Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.019 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.272

For 10% significance level, 0.019 is not an outlier.
For 5% significance level, 0.019 is not an outlier.
For 1% significance level, 0.019 is not an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.183

For 10% significance level, 0.0019 is not an outlier.
For 5% significance level, 0.0019 is not an outlier.
For 1% significance level, 0.0019 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_awqc_hq_signif_bmi)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.019 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.272

For 10% significance level, 0.019 is not an outlier.
For 5% significance level, 0.019 is not an outlier.
For 1% significance level, 0.019 is not an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.183

For 10% significance level, 0.0019 is not an outlier.
For 5% significance level, 0.0019 is not an outlier.
For 1% significance level, 0.0019 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_awqc_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.019 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.272

For 10% significance level, 0.019 is not an outlier.
For 5% significance level, 0.019 is not an outlier.
For 1% significance level, 0.019 is not an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.183

For 10% significance level, 0.0019 is not an outlier.
For 5% significance level, 0.0019 is not an outlier.
For 1% significance level, 0.0019 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.00033 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.235

For 10% significance level, 0.00033 is not an outlier.
For 5% significance level, 0.00033 is not an outlier.
For 1% significance level, 0.00033 is not an outlier.

2. Data Value 3.5E-05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.170

For 10% significance level, 3.5E-05 is not an outlier.
For 5% significance level, 3.5E-05 is not an outlier.
For 1% significance level, 3.5E-05 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_taxa-specific benchmark_hq_signif_bmi)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.0089 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.261

For 10% significance level, 0.0089 is not an outlier.
For 5% significance level, 0.0089 is not an outlier.
For 1% significance level, 0.0089 is not an outlier.

2. Data Value 0.00092 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.175

For 10% significance level, 0.00092 is not an outlier.
For 5% significance level, 0.00092 is not an outlier.
For 1% significance level, 0.00092 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_taxa-specific benchmark_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.00026 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.249

For 10% significance level, 0.00026 is not an outlier.
For 5% significance level, 0.00026 is not an outlier.
For 1% significance level, 0.00026 is not an outlier.

2. Data Value 2.7E-05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.175

For 10% significance level, 2.7E-05 is not an outlier.
For 5% significance level, 2.7E-05 is not an outlier.
For 1% significance level, 2.7E-05 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_awqc_concentration_aquatic plants)

Total N = 22
Number NDs = 3
Number Detects = 19
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.244 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.483

For 10% significance level, 0.244 is an outlier.
For 5% significance level, 0.244 is an outlier.
For 1% significance level, 0.244 is not an outlier.

2. Data Value 0.004 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.004 is not an outlier.
For 5% significance level, 0.004 is not an outlier.
For 1% significance level, 0.004 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_awqc_concentration_bmi)

Total N = 22
Number NDs = 3
Number Detects = 19
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.244 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.483

For 10% significance level, 0.244 is an outlier.
For 5% significance level, 0.244 is an outlier.
For 1% significance level, 0.244 is not an outlier.

2. Data Value 0.004 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.004 is not an outlier.
For 5% significance level, 0.004 is not an outlier.
For 1% significance level, 0.004 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_awqc_concentration_fish)

Total N = 22
Number NDs = 3
Number Detects = 19
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.244 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.483

For 10% significance level, 0.244 is an outlier.
For 5% significance level, 0.244 is an outlier.
For 1% significance level, 0.244 is not an outlier.

2. Data Value 0.004 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.004 is not an outlier.
For 5% significance level, 0.004 is not an outlier.
For 1% significance level, 0.004 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_awqc_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.539

For 10% significance level, 0.44 is an outlier.
For 5% significance level, 0.44 is an outlier.
For 1% significance level, 0.44 is an outlier.

2. Data Value 0.009 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.020

For 10% significance level, 0.009 is not an outlier.
For 5% significance level, 0.009 is not an outlier.
For 1% significance level, 0.009 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_awqc_hq_signif_bmi)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.539

For 10% significance level, 0.44 is an outlier.
For 5% significance level, 0.44 is an outlier.
For 1% significance level, 0.44 is an outlier.

2. Data Value 0.009 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.020

For 10% significance level, 0.009 is not an outlier.
For 5% significance level, 0.009 is not an outlier.
For 1% significance level, 0.009 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_awqc_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.539

For 10% significance level, 0.44 is an outlier.
For 5% significance level, 0.44 is an outlier.

For 1% significance level, 0.44 is an outlier.

2. Data Value 0.009 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.020

For 10% significance level, 0.009 is not an outlier.
For 5% significance level, 0.009 is not an outlier.
For 1% significance level, 0.009 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.0044 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.493

For 10% significance level, 0.0044 is an outlier.
For 5% significance level, 0.0044 is an outlier.
For 1% significance level, 0.0044 is not an outlier.

2. Data Value 0.00014 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.00014 is not an outlier.
For 5% significance level, 0.00014 is not an outlier.
For 1% significance level, 0.00014 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.06 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.550

For 10% significance level, 0.06 is an outlier.
For 5% significance level, 0.06 is an outlier.
For 1% significance level, 0.06 is an outlier.

2. Data Value 0.0012 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.022

For 10% significance level, 0.0012 is not an outlier.
For 5% significance level, 0.0012 is not an outlier.

For 1% significance level, 0.0012 is not an outlier.

Dixon's Outlier Test for concDL (calcium_ug/l_na_concentration_na)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 41000 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.294

For 10% significance level, 41000 is not an outlier.
For 5% significance level, 41000 is not an outlier.
For 1% significance level, 41000 is not an outlier.

2. Data Value 14000 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.160

For 10% significance level, 14000 is not an outlier.
For 5% significance level, 14000 is not an outlier.
For 1% significance level, 14000 is not an outlier.

Dixon's Outlier Test for concDL (chloride_mg/l_na_concentration_na)

Total N = 22
Number NDs = 4
Number Detects = 18
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.287

For 10% significance level, 5.4 is not an outlier.
For 5% significance level, 5.4 is not an outlier.
For 1% significance level, 5.4 is not an outlier.

2. Data Value 0.16 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.021

For 10% significance level, 0.16 is not an outlier.
For 5% significance level, 0.16 is not an outlier.
For 1% significance level, 0.16 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_awqc_concentration_aquatic plants)

Total N = 22
Number NDs = 17
Number Detects = 5

Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.86 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.645

For 10% significance level, 3.86 is an outlier.
For 5% significance level, 3.86 is an outlier.
For 1% significance level, 3.86 is an outlier.

2. Data Value 0.04 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.070

For 10% significance level, 0.04 is not an outlier.
For 5% significance level, 0.04 is not an outlier.
For 1% significance level, 0.04 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_awqc_concentration_bmi)

Total N = 22
Number NDs = 17
Number Detects = 5
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.86 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.645

For 10% significance level, 3.86 is an outlier.
For 5% significance level, 3.86 is an outlier.
For 1% significance level, 3.86 is an outlier.

2. Data Value 0.04 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.070

For 10% significance level, 0.04 is not an outlier.
For 5% significance level, 0.04 is not an outlier.
For 1% significance level, 0.04 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_awqc_concentration_fish)

Total N = 22
Number NDs = 17
Number Detects = 5
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.86 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.645

For 10% significance level, 3.86 is an outlier.
For 5% significance level, 3.86 is an outlier.
For 1% significance level, 3.86 is an outlier.

2. Data Value 0.04 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.070

For 10% significance level, 0.04 is not an outlier.
For 5% significance level, 0.04 is not an outlier.
For 1% significance level, 0.04 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_awqc_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.791

For 10% significance level, 7.4 is an outlier.
For 5% significance level, 7.4 is an outlier.
For 1% significance level, 7.4 is an outlier.

2. Data Value 0.036 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.022

For 10% significance level, 0.036 is not an outlier.
For 5% significance level, 0.036 is not an outlier.
For 1% significance level, 0.036 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_awqc_hq_signif_bmi)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.791

For 10% significance level, 7.4 is an outlier.
For 5% significance level, 7.4 is an outlier.
For 1% significance level, 7.4 is an outlier.

2. Data Value 0.036 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.022

For 10% significance level, 0.036 is not an outlier.
For 5% significance level, 0.036 is not an outlier.
For 1% significance level, 0.036 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_awqc_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.791

For 10% significance level, 7.4 is an outlier.
For 5% significance level, 7.4 is an outlier.
For 1% significance level, 7.4 is an outlier.

2. Data Value 0.036 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.022

For 10% significance level, 0.036 is not an outlier.
For 5% significance level, 0.036 is not an outlier.
For 1% significance level, 0.036 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_taxa-specific benchmark_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.77 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.807

For 10% significance level, 0.77 is an outlier.
For 5% significance level, 0.77 is an outlier.
For 1% significance level, 0.77 is an outlier.

2. Data Value 0.0044 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.062

For 10% significance level, 0.0044 is not an outlier.
For 5% significance level, 0.0044 is not an outlier.
For 1% significance level, 0.0044 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 14 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.779

For 10% significance level, 14 is an outlier.
For 5% significance level, 14 is an outlier.
For 1% significance level, 14 is an outlier.

2. Data Value 0.067 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.020

For 10% significance level, 0.067 is not an outlier.
For 5% significance level, 0.067 is not an outlier.
For 1% significance level, 0.067 is not an outlier.

Dixon's Outlier Test for concDL (doc_mg/l_na_concentration_na)

Total N = 22
Number NDs = 5
Number Detects = 17
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.095 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.377

For 10% significance level, 3.095 is not an outlier.
For 5% significance level, 3.095 is not an outlier.
For 1% significance level, 3.095 is not an outlier.

2. Data Value 0.035 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.156

For 10% significance level, 0.035 is not an outlier.
For 5% significance level, 0.035 is not an outlier.
For 1% significance level, 0.035 is not an outlier.

Dixon's Outlier Test for concDL (hardness_mg/l_na_concentration_na)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 133 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.273

For 10% significance level, 133 is not an outlier.
For 5% significance level, 133 is not an outlier.
For 1% significance level, 133 is not an outlier.

2. Data Value 47 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.138

For 10% significance level, 47 is not an outlier.
For 5% significance level, 47 is not an outlier.
For 1% significance level, 47 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_awqc_concentration_aquatic plants)

Total N = 22
Number NDs = 12
Number Detects = 10
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 11100 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.707

For 10% significance level, 11100 is an outlier.
For 5% significance level, 11100 is an outlier.
For 1% significance level, 11100 is an outlier.

2. Data Value 4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 4 is not an outlier.
For 5% significance level, 4 is not an outlier.
For 1% significance level, 4 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_awqc_concentration_bmi)

Total N = 22
Number NDs = 12
Number Detects = 10
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 11100 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.707

For 10% significance level, 11100 is an outlier.
For 5% significance level, 11100 is an outlier.

For 1% significance level, 11100 is an outlier.

2. Data Value 4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 4 is not an outlier.
For 5% significance level, 4 is not an outlier.
For 1% significance level, 4 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_awqc_concentration_fish)

Total N = 22
Number NDs = 12
Number Detects = 10
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 11100 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.707

For 10% significance level, 11100 is an outlier.
For 5% significance level, 11100 is an outlier.
For 1% significance level, 11100 is an outlier.

2. Data Value 4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 4 is not an outlier.
For 5% significance level, 4 is not an outlier.
For 1% significance level, 4 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_awqc_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 11 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.710

For 10% significance level, 11 is an outlier.
For 5% significance level, 11 is an outlier.
For 1% significance level, 11 is an outlier.

2. Data Value 0.008 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.008 is not an outlier.
For 5% significance level, 0.008 is not an outlier.

For 1% significance level, 0.008 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_awqc_hq_signif_bmi)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 11 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.710

For 10% significance level, 11 is an outlier.
For 5% significance level, 11 is an outlier.
For 1% significance level, 11 is an outlier.

2. Data Value 0.008 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.008 is not an outlier.
For 5% significance level, 0.008 is not an outlier.
For 1% significance level, 0.008 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_awqc_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 11 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.710

For 10% significance level, 11 is an outlier.
For 5% significance level, 11 is an outlier.
For 1% significance level, 11 is an outlier.

2. Data Value 0.008 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.008 is not an outlier.
For 5% significance level, 0.008 is not an outlier.
For 1% significance level, 0.008 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22

Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.92 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.707

For 10% significance level, 0.92 is an outlier.
For 5% significance level, 0.92 is an outlier.
For 1% significance level, 0.92 is an outlier.

2. Data Value 0.00067 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.00067 is not an outlier.
For 5% significance level, 0.00067 is not an outlier.
For 1% significance level, 0.00067 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_taxa-specific benchmark_hq_signif_bmi)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 9.2 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.545

For 10% significance level, 9.2 is an outlier.
For 5% significance level, 9.2 is an outlier.
For 1% significance level, 9.2 is an outlier.

2. Data Value 0.021 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.021 is not an outlier.
For 5% significance level, 0.021 is not an outlier.
For 1% significance level, 0.021 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_taxa-specific benchmark_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 6.6 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.380

For 10% significance level, 6.6 is not an outlier.
For 5% significance level, 6.6 is not an outlier.
For 1% significance level, 6.6 is not an outlier.

2. Data Value 0.011 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.004

For 10% significance level, 0.011 is not an outlier.
For 5% significance level, 0.011 is not an outlier.
For 1% significance level, 0.011 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_awqc_concentration_aquatic plants)

Total N = 22
Number NDs = 16
Number Detects = 6
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.72 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.768

For 10% significance level, 5.72 is an outlier.
For 5% significance level, 5.72 is an outlier.
For 1% significance level, 5.72 is an outlier.

2. Data Value 0.0195 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.008

For 10% significance level, 0.0195 is not an outlier.
For 5% significance level, 0.0195 is not an outlier.
For 1% significance level, 0.0195 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_awqc_concentration_bmi)

Total N = 22
Number NDs = 16
Number Detects = 6
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.72 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.768

For 10% significance level, 5.72 is an outlier.
For 5% significance level, 5.72 is an outlier.
For 1% significance level, 5.72 is an outlier.

2. Data Value 0.0195 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.008

For 10% significance level, 0.0195 is not an outlier.
For 5% significance level, 0.0195 is not an outlier.
For 1% significance level, 0.0195 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_awqc_concentration_fish)

Total N = 22
Number NDs = 16
Number Detects = 6
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.72 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.768

For 10% significance level, 5.72 is an outlier.
For 5% significance level, 5.72 is an outlier.
For 1% significance level, 5.72 is an outlier.

2. Data Value 0.0195 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.008

For 10% significance level, 0.0195 is not an outlier.
For 5% significance level, 0.0195 is not an outlier.
For 1% significance level, 0.0195 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_awqc_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 2.7 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.651

For 10% significance level, 2.7 is an outlier.
For 5% significance level, 2.7 is an outlier.
For 1% significance level, 2.7 is an outlier.

2. Data Value 0.022 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.006

For 10% significance level, 0.022 is not an outlier.
For 5% significance level, 0.022 is not an outlier.
For 1% significance level, 0.022 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_awqc_hq_signif_bmi)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 2.7 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.651

For 10% significance level, 2.7 is an outlier.
For 5% significance level, 2.7 is an outlier.
For 1% significance level, 2.7 is an outlier.

2. Data Value 0.022 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.006

For 10% significance level, 0.022 is not an outlier.
For 5% significance level, 0.022 is not an outlier.
For 1% significance level, 0.022 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_awqc_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 2.7 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.651

For 10% significance level, 2.7 is an outlier.
For 5% significance level, 2.7 is an outlier.
For 1% significance level, 2.7 is an outlier.

2. Data Value 0.022 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.006

For 10% significance level, 0.022 is not an outlier.
For 5% significance level, 0.022 is not an outlier.
For 1% significance level, 0.022 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.091 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.777

For 10% significance level, 0.091 is an outlier.
For 5% significance level, 0.091 is an outlier.
For 1% significance level, 0.091 is an outlier.

2. Data Value 0.00062 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.016

For 10% significance level, 0.00062 is not an outlier.
For 5% significance level, 0.00062 is not an outlier.
For 1% significance level, 0.00062 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_taxa-specific benchmark_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.077 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.656

For 10% significance level, 0.077 is an outlier.
For 5% significance level, 0.077 is an outlier.
For 1% significance level, 0.077 is an outlier.

2. Data Value 0.00061 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.007

For 10% significance level, 0.00061 is not an outlier.
For 5% significance level, 0.00061 is not an outlier.
For 1% significance level, 0.00061 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.29 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.662

For 10% significance level, 0.29 is an outlier.
For 5% significance level, 0.29 is an outlier.

For 1% significance level, 0.29 is an outlier.

2. Data Value 0.0021 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.009

For 10% significance level, 0.0021 is not an outlier.
For 5% significance level, 0.0021 is not an outlier.
For 1% significance level, 0.0021 is not an outlier.

Dixon's Outlier Test for concDL (magnesium_ug/l_na_concentration_na)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 8610 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.239

For 10% significance level, 8610 is not an outlier.
For 5% significance level, 8610 is not an outlier.
For 1% significance level, 8610 is not an outlier.

2. Data Value 2480 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.103

For 10% significance level, 2480 is not an outlier.
For 5% significance level, 2480 is not an outlier.
For 1% significance level, 2480 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_awqc_concentration_aquatic plants)

Total N = 22
Number NDs = 4
Number Detects = 18
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 859 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.177

For 10% significance level, 859 is not an outlier.
For 5% significance level, 859 is not an outlier.
For 1% significance level, 859 is not an outlier.

2. Data Value 0.395 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.395 is not an outlier.
For 5% significance level, 0.395 is not an outlier.

For 1% significance level, 0.395 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_awqc_concentration_bmi)

Total N = 22
Number NDs = 4
Number Detects = 18
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 859 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.177

For 10% significance level, 859 is not an outlier.
For 5% significance level, 859 is not an outlier.
For 1% significance level, 859 is not an outlier.

2. Data Value 0.395 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.395 is not an outlier.
For 5% significance level, 0.395 is not an outlier.
For 1% significance level, 0.395 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_awqc_concentration_fish)

Total N = 22
Number NDs = 4
Number Detects = 18
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 859 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.177

For 10% significance level, 859 is not an outlier.
For 5% significance level, 859 is not an outlier.
For 1% significance level, 859 is not an outlier.

2. Data Value 0.395 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.395 is not an outlier.
For 5% significance level, 0.395 is not an outlier.
For 1% significance level, 0.395 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_awqc_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22

Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.54 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.278

For 10% significance level, 0.54 is not an outlier.
For 5% significance level, 0.54 is not an outlier.
For 1% significance level, 0.54 is not an outlier.

2. Data Value 0.00049 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.002

For 10% significance level, 0.00049 is not an outlier.
For 5% significance level, 0.00049 is not an outlier.
For 1% significance level, 0.00049 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_awqc_hq_signif_bmi)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.54 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.278

For 10% significance level, 0.54 is not an outlier.
For 5% significance level, 0.54 is not an outlier.
For 1% significance level, 0.54 is not an outlier.

2. Data Value 0.00049 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.002

For 10% significance level, 0.00049 is not an outlier.
For 5% significance level, 0.00049 is not an outlier.
For 1% significance level, 0.00049 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_awqc_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.54 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.278

For 10% significance level, 0.54 is not an outlier.
For 5% significance level, 0.54 is not an outlier.
For 1% significance level, 0.54 is not an outlier.

2. Data Value 0.00049 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.002

For 10% significance level, 0.00049 is not an outlier.
For 5% significance level, 0.00049 is not an outlier.
For 1% significance level, 0.00049 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.054 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.185

For 10% significance level, 0.054 is not an outlier.
For 5% significance level, 0.054 is not an outlier.
For 1% significance level, 0.054 is not an outlier.

2. Data Value 4.9E-05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 4.9E-05 is not an outlier.
For 5% significance level, 4.9E-05 is not an outlier.
For 1% significance level, 4.9E-05 is not an outlier.

Dixon's Outlier Test for concDL (ph_su_na_concentration_na)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7.98 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.206

For 10% significance level, 7.98 is not an outlier.
For 5% significance level, 7.98 is not an outlier.
For 1% significance level, 7.98 is not an outlier.

2. Data Value 6.65 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.019

For 10% significance level, 6.65 is not an outlier.
For 5% significance level, 6.65 is not an outlier.
For 1% significance level, 6.65 is not an outlier.

Dixon's Outlier Test for concDL (potassium_ug/l_na_concentration_na)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7720 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.621

For 10% significance level, 7720 is an outlier.
For 5% significance level, 7720 is an outlier.
For 1% significance level, 7720 is an outlier.

2. Data Value 700 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.011

For 10% significance level, 700 is not an outlier.
For 5% significance level, 700 is not an outlier.
For 1% significance level, 700 is not an outlier.

Dixon's Outlier Test for concDL (sodium_ug/l_na_concentration_na)

Total N = 22
Number NDs = 2
Number Detects = 20
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5190 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.228

For 10% significance level, 5190 is not an outlier.
For 5% significance level, 5190 is not an outlier.
For 1% significance level, 5190 is not an outlier.

2. Data Value 470 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.159

For 10% significance level, 470 is not an outlier.
For 5% significance level, 470 is not an outlier.
For 1% significance level, 470 is not an outlier.

Dixon's Outlier Test for concDL (sulfate_mg/l_na_concentration_na)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 35.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.293

For 10% significance level, 35.4 is not an outlier.
For 5% significance level, 35.4 is not an outlier.
For 1% significance level, 35.4 is not an outlier.

2. Data Value 1.41 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.172

For 10% significance level, 1.41 is not an outlier.
For 5% significance level, 1.41 is not an outlier.
For 1% significance level, 1.41 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_awqc_concentration_aquatic plants)

Total N = 22
Number NDs = 17
Number Detects = 5
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 80.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.654

For 10% significance level, 80.4 is an outlier.
For 5% significance level, 80.4 is an outlier.
For 1% significance level, 80.4 is an outlier.

2. Data Value 0.55 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 0.55 is not an outlier.
For 5% significance level, 0.55 is not an outlier.
For 1% significance level, 0.55 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_awqc_concentration_bmi)

Total N = 22
Number NDs = 17
Number Detects = 5
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514

Table C3-10
ProUCL Outlier Test for Porewater for Approach B
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 80.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.654

For 10% significance level, 80.4 is an outlier.
For 5% significance level, 80.4 is an outlier.
For 1% significance level, 80.4 is an outlier.

2. Data Value 0.55 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 0.55 is not an outlier.
For 5% significance level, 0.55 is not an outlier.
For 1% significance level, 0.55 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_awqc_concentration_fish)

Total N = 22
Number NDs = 17
Number Detects = 5
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 80.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.654

For 10% significance level, 80.4 is an outlier.
For 5% significance level, 80.4 is an outlier.
For 1% significance level, 80.4 is an outlier.

2. Data Value 0.55 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 0.55 is not an outlier.
For 5% significance level, 0.55 is not an outlier.
For 1% significance level, 0.55 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_awqc_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.496

For 10% significance level, 1.1 is an outlier.
For 5% significance level, 1.1 is an outlier.

For 1% significance level, 1.1 is not an outlier.

2. Data Value 0.0092 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 0.0092 is not an outlier.
For 5% significance level, 0.0092 is not an outlier.
For 1% significance level, 0.0092 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_awqc_hq_signif_bmi)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.496

For 10% significance level, 1.1 is an outlier.
For 5% significance level, 1.1 is an outlier.
For 1% significance level, 1.1 is not an outlier.

2. Data Value 0.0092 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 0.0092 is not an outlier.
For 5% significance level, 0.0092 is not an outlier.
For 1% significance level, 0.0092 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_awqc_hq_signif_fish)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.496

For 10% significance level, 1.1 is an outlier.
For 5% significance level, 1.1 is an outlier.
For 1% significance level, 1.1 is not an outlier.

2. Data Value 0.0092 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 0.0092 is not an outlier.
For 5% significance level, 0.0092 is not an outlier.

For 1% significance level, 0.0092 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_taxa-specific benchmark_hq_signif_aquatic plants)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.5 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.305

For 10% significance level, 0.5 is not an outlier.
For 5% significance level, 0.5 is not an outlier.
For 1% significance level, 0.5 is not an outlier.

2. Data Value 0.0069 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.006

For 10% significance level, 0.0069 is not an outlier.
For 5% significance level, 0.0069 is not an outlier.
For 1% significance level, 0.0069 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_taxa-specific benchmark_hq_signif_white sturgeon)

Total N = 22
Number NDs = 0
Number Detects = 22
Number Data (n) = 22
10% critical value: 0.382
5% critical value: 0.43
1% critical value: 0.514
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.81 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.474

For 10% significance level, 0.81 is an outlier.
For 5% significance level, 0.81 is an outlier.
For 1% significance level, 0.81 is not an outlier.

2. Data Value 0.0069 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 0.0069 is not an outlier.
For 5% significance level, 0.0069 is not an outlier.
For 1% significance level, 0.0069 is not an outlier.

Table C3-11
ProUCL Outlier Test for Porewater for Approach D
Upper Columbia River
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Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit

User Selected Options

Date/Time of Computation	ProUCL 5.2 10/3/2023 1:48:46 PM
From File	porewater_utl_input_ph3.xls
Full Precision	OFF

Dixon's Outlier Test for concDL (alkalinity_mg/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 117 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.194

For 10% significance level, 117 is not an outlier.
For 5% significance level, 117 is not an outlier.
For 1% significance level, 117 is not an outlier.

2. Data Value 47 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.138

For 10% significance level, 47 is not an outlier.
For 5% significance level, 47 is not an outlier.
For 1% significance level, 47 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 13
Number Detects = 5
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 143 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.550

For 10% significance level, 143 is an outlier.
For 5% significance level, 143 is an outlier.
For 1% significance level, 143 is not an outlier.

2. Data Value 2 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.015

For 10% significance level, 2 is not an outlier.
For 5% significance level, 2 is not an outlier.
For 1% significance level, 2 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 13
Number Detects = 5
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 143 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.550

For 10% significance level, 143 is an outlier.
For 5% significance level, 143 is an outlier.
For 1% significance level, 143 is not an outlier.

2. Data Value 2 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.015

For 10% significance level, 2 is not an outlier.
For 5% significance level, 2 is not an outlier.
For 1% significance level, 2 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 13
Number Detects = 5
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 143 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.550

For 10% significance level, 143 is an outlier.

For 5% significance level, 143 is an outlier.

For 1% significance level, 143 is not an outlier.

2. Data Value 2 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.015

For 10% significance level, 2 is not an outlier.

For 5% significance level, 2 is not an outlier.

For 1% significance level, 2 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.43 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.461

For 10% significance level, 0.43 is an outlier.

For 5% significance level, 0.43 is not an outlier.

For 1% significance level, 0.43 is not an outlier.

2. Data Value 0.012 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.026

For 10% significance level, 0.012 is not an outlier.

For 5% significance level, 0.012 is not an outlier.

For 1% significance level, 0.012 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.035 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.565

For 10% significance level, 0.035 is an outlier.
For 5% significance level, 0.035 is an outlier.
For 1% significance level, 0.035 is an outlier.

2. Data Value 0.00098 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.028

For 10% significance level, 0.00098 is not an outlier.
For 5% significance level, 0.00098 is not an outlier.
For 1% significance level, 0.00098 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.43 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.461

For 10% significance level, 0.43 is an outlier.
For 5% significance level, 0.43 is not an outlier.
For 1% significance level, 0.43 is not an outlier.

2. Data Value 0.012 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.026

For 10% significance level, 0.012 is not an outlier.
For 5% significance level, 0.012 is not an outlier.
For 1% significance level, 0.012 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561

Table C3-11
ProUCL Outlier Test for Porewater for Approach D
Upper Columbia River
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Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.43 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.461

For 10% significance level, 0.43 is an outlier.
For 5% significance level, 0.43 is not an outlier.
For 1% significance level, 0.43 is not an outlier.

2. Data Value 0.012 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.026

For 10% significance level, 0.012 is not an outlier.
For 5% significance level, 0.012 is not an outlier.
For 1% significance level, 0.012 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.663 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.466

For 10% significance level, 0.663 is an outlier.
For 5% significance level, 0.663 is not an outlier.
For 1% significance level, 0.663 is not an outlier.

2. Data Value 0.038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.130

For 10% significance level, 0.038 is not an outlier.
For 5% significance level, 0.038 is not an outlier.
For 1% significance level, 0.038 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18

10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.663 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.466

For 10% significance level, 0.663 is an outlier.
For 5% significance level, 0.663 is not an outlier.
For 1% significance level, 0.663 is not an outlier.

2. Data Value 0.038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.130

For 10% significance level, 0.038 is not an outlier.
For 5% significance level, 0.038 is not an outlier.
For 1% significance level, 0.038 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.663 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.466

For 10% significance level, 0.663 is an outlier.
For 5% significance level, 0.663 is not an outlier.
For 1% significance level, 0.663 is not an outlier.

2. Data Value 0.038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.130

For 10% significance level, 0.038 is not an outlier.
For 5% significance level, 0.038 is not an outlier.
For 1% significance level, 0.038 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18

Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.017 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.551

For 10% significance level, 0.017 is an outlier.
For 5% significance level, 0.017 is an outlier.
For 1% significance level, 0.017 is not an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.296

For 10% significance level, 0.0019 is not an outlier.
For 5% significance level, 0.0019 is not an outlier.
For 1% significance level, 0.0019 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.0003 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.536

For 10% significance level, 0.0003 is an outlier.
For 5% significance level, 0.0003 is an outlier.
For 1% significance level, 0.0003 is not an outlier.

2. Data Value 3.5E-05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.283

For 10% significance level, 3.5E-05 is not an outlier.
For 5% significance level, 3.5E-05 is not an outlier.
For 1% significance level, 3.5E-05 is not an outlier.

Table C3-11
ProUCL Outlier Test for Porewater for Approach D
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.017 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.551

For 10% significance level, 0.017 is an outlier.
For 5% significance level, 0.017 is an outlier.
For 1% significance level, 0.017 is not an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.296

For 10% significance level, 0.0019 is not an outlier.
For 5% significance level, 0.0019 is not an outlier.
For 1% significance level, 0.0019 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_bmi_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.008 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.550

For 10% significance level, 0.008 is an outlier.
For 5% significance level, 0.008 is an outlier.
For 1% significance level, 0.008 is not an outlier.

2. Data Value 0.00092 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.286

For 10% significance level, 0.00092 is not an outlier.
For 5% significance level, 0.00092 is not an outlier.

For 1% significance level, 0.00092 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.017 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.551

For 10% significance level, 0.017 is an outlier.
For 5% significance level, 0.017 is an outlier.
For 1% significance level, 0.017 is not an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.296

For 10% significance level, 0.0019 is not an outlier.
For 5% significance level, 0.0019 is not an outlier.
For 1% significance level, 0.0019 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_fish_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.00024 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.556

For 10% significance level, 0.00024 is an outlier.
For 5% significance level, 0.00024 is an outlier.
For 1% significance level, 0.00024 is not an outlier.

2. Data Value 2.7E-05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.292

For 10% significance level, 2.7E-05 is not an outlier.
For 5% significance level, 2.7E-05 is not an outlier.
For 1% significance level, 2.7E-05 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 3
Number Detects = 15
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.244 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.867

For 10% significance level, 0.244 is an outlier.
For 5% significance level, 0.244 is an outlier.
For 1% significance level, 0.244 is an outlier.

2. Data Value 0.004 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.004 is not an outlier.
For 5% significance level, 0.004 is not an outlier.
For 1% significance level, 0.004 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 3
Number Detects = 15
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.244 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.867

For 10% significance level, 0.244 is an outlier.
For 5% significance level, 0.244 is an outlier.
For 1% significance level, 0.244 is an outlier.

2. Data Value 0.004 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.004 is not an outlier.
For 5% significance level, 0.004 is not an outlier.
For 1% significance level, 0.004 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 3
Number Detects = 15
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.244 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.867

For 10% significance level, 0.244 is an outlier.
For 5% significance level, 0.244 is an outlier.
For 1% significance level, 0.244 is an outlier.

2. Data Value 0.004 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.004 is not an outlier.
For 5% significance level, 0.004 is not an outlier.
For 1% significance level, 0.004 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.843

For 10% significance level, 0.44 is an outlier.

For 5% significance level, 0.44 is an outlier.
For 1% significance level, 0.44 is an outlier.

2. Data Value 0.009 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.056

For 10% significance level, 0.009 is not an outlier.
For 5% significance level, 0.009 is not an outlier.
For 1% significance level, 0.009 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.0044 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.883

For 10% significance level, 0.0044 is an outlier.
For 5% significance level, 0.0044 is an outlier.
For 1% significance level, 0.0044 is an outlier.

2. Data Value 0.00014 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.00014 is not an outlier.
For 5% significance level, 0.00014 is not an outlier.
For 1% significance level, 0.00014 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.843

For 10% significance level, 0.44 is an outlier.
For 5% significance level, 0.44 is an outlier.
For 1% significance level, 0.44 is an outlier.

2. Data Value 0.009 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.056

For 10% significance level, 0.009 is not an outlier.
For 5% significance level, 0.009 is not an outlier.
For 1% significance level, 0.009 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.843

For 10% significance level, 0.44 is an outlier.
For 5% significance level, 0.44 is an outlier.
For 1% significance level, 0.44 is an outlier.

2. Data Value 0.009 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.056

For 10% significance level, 0.009 is not an outlier.
For 5% significance level, 0.009 is not an outlier.
For 1% significance level, 0.009 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.06 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.842

For 10% significance level, 0.06 is an outlier.
For 5% significance level, 0.06 is an outlier.
For 1% significance level, 0.06 is an outlier.

2. Data Value 0.0012 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.061

For 10% significance level, 0.0012 is not an outlier.
For 5% significance level, 0.0012 is not an outlier.
For 1% significance level, 0.0012 is not an outlier.

Dixon's Outlier Test for concDL (calcium_ug/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 41000 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.349

For 10% significance level, 41000 is not an outlier.
For 5% significance level, 41000 is not an outlier.
For 1% significance level, 41000 is not an outlier.

2. Data Value 14000 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.171

For 10% significance level, 14000 is not an outlier.
For 5% significance level, 14000 is not an outlier.
For 1% significance level, 14000 is not an outlier.

Dixon's Outlier Test for concDL (chloride_mg/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424

5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.287

For 10% significance level, 5.4 is not an outlier.
For 5% significance level, 5.4 is not an outlier.
For 1% significance level, 5.4 is not an outlier.

2. Data Value 0.16 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.021

For 10% significance level, 0.16 is not an outlier.
For 5% significance level, 0.16 is not an outlier.
For 1% significance level, 0.16 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 17
Number Detects = 1
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.86 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.880

For 10% significance level, 3.86 is an outlier.
For 5% significance level, 3.86 is an outlier.
For 1% significance level, 3.86 is an outlier.

2. Data Value 0.04 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.183

For 10% significance level, 0.04 is not an outlier.
For 5% significance level, 0.04 is not an outlier.
For 1% significance level, 0.04 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 17

Number Detects = 1
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.86 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.880

For 10% significance level, 3.86 is an outlier.
For 5% significance level, 3.86 is an outlier.
For 1% significance level, 3.86 is an outlier.

2. Data Value 0.04 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.183

For 10% significance level, 0.04 is not an outlier.
For 5% significance level, 0.04 is not an outlier.
For 1% significance level, 0.04 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 17
Number Detects = 1
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.86 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.880

For 10% significance level, 3.86 is an outlier.
For 5% significance level, 3.86 is an outlier.
For 1% significance level, 3.86 is an outlier.

2. Data Value 0.04 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.183

For 10% significance level, 0.04 is not an outlier.
For 5% significance level, 0.04 is not an outlier.
For 1% significance level, 0.04 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.808

For 10% significance level, 7.4 is an outlier.
For 5% significance level, 7.4 is an outlier.
For 1% significance level, 7.4 is an outlier.

2. Data Value 0.036 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.118

For 10% significance level, 0.036 is not an outlier.
For 5% significance level, 0.036 is not an outlier.
For 1% significance level, 0.036 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.808

For 10% significance level, 7.4 is an outlier.
For 5% significance level, 7.4 is an outlier.
For 1% significance level, 7.4 is an outlier.

2. Data Value 0.036 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.118

For 10% significance level, 0.036 is not an outlier.
For 5% significance level, 0.036 is not an outlier.
For 1% significance level, 0.036 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.808

For 10% significance level, 7.4 is an outlier.
For 5% significance level, 7.4 is an outlier.
For 1% significance level, 7.4 is an outlier.

2. Data Value 0.036 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.118

For 10% significance level, 0.036 is not an outlier.
For 5% significance level, 0.036 is not an outlier.
For 1% significance level, 0.036 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_hq_signif_fish_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.77 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.822

For 10% significance level, 0.77 is an outlier.
For 5% significance level, 0.77 is an outlier.
For 1% significance level, 0.77 is an outlier.

2. Data Value 0.0044 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.152

For 10% significance level, 0.0044 is not an outlier.
For 5% significance level, 0.0044 is not an outlier.
For 1% significance level, 0.0044 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 14 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.793

For 10% significance level, 14 is an outlier.
For 5% significance level, 14 is an outlier.
For 1% significance level, 14 is an outlier.

2. Data Value 0.067 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.100

For 10% significance level, 0.067 is not an outlier.
For 5% significance level, 0.067 is not an outlier.
For 1% significance level, 0.067 is not an outlier.

Dixon's Outlier Test for concDL (doc_mg/l_concentration_na_na)

Total N = 18
Number NDs = 1
Number Detects = 17
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.05 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.544

For 10% significance level, 3.05 is an outlier.
For 5% significance level, 3.05 is an outlier.
For 1% significance level, 3.05 is not an outlier.

2. Data Value 0.035 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.204

For 10% significance level, 0.035 is not an outlier.
For 5% significance level, 0.035 is not an outlier.
For 1% significance level, 0.035 is not an outlier.

Dixon's Outlier Test for concDL (hardness_mg/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 133 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.356

For 10% significance level, 133 is not an outlier.
For 5% significance level, 133 is not an outlier.
For 1% significance level, 133 is not an outlier.

2. Data Value 47 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.173

For 10% significance level, 47 is not an outlier.
For 5% significance level, 47 is not an outlier.
For 1% significance level, 47 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5500 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.839

For 10% significance level, 5500 is an outlier.
For 5% significance level, 5500 is an outlier.

For 1% significance level, 5500 is an outlier.

2. Data Value 4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 4 is not an outlier.
For 5% significance level, 4 is not an outlier.
For 1% significance level, 4 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5500 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.839

For 10% significance level, 5500 is an outlier.
For 5% significance level, 5500 is an outlier.
For 1% significance level, 5500 is an outlier.

2. Data Value 4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 4 is not an outlier.
For 5% significance level, 4 is not an outlier.
For 1% significance level, 4 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5500 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.839

For 10% significance level, 5500 is an outlier.
For 5% significance level, 5500 is an outlier.
For 1% significance level, 5500 is an outlier.

2. Data Value 4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 4 is not an outlier.
For 5% significance level, 4 is not an outlier.
For 1% significance level, 4 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.5 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.840

For 10% significance level, 5.5 is an outlier.
For 5% significance level, 5.5 is an outlier.
For 1% significance level, 5.5 is an outlier.

2. Data Value 0.008 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 0.008 is not an outlier.
For 5% significance level, 0.008 is not an outlier.
For 1% significance level, 0.008 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.46 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.841

For 10% significance level, 0.46 is an outlier.
For 5% significance level, 0.46 is an outlier.
For 1% significance level, 0.46 is an outlier.

2. Data Value 0.00067 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 0.00067 is not an outlier.
For 5% significance level, 0.00067 is not an outlier.
For 1% significance level, 0.00067 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.5 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.840

For 10% significance level, 5.5 is an outlier.
For 5% significance level, 5.5 is an outlier.
For 1% significance level, 5.5 is an outlier.

2. Data Value 0.008 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 0.008 is not an outlier.
For 5% significance level, 0.008 is not an outlier.
For 1% significance level, 0.008 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_bmi_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475

1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 6.5 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.757

For 10% significance level, 6.5 is an outlier.
For 5% significance level, 6.5 is an outlier.
For 1% significance level, 6.5 is an outlier.

2. Data Value 0.021 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 0.021 is not an outlier.
For 5% significance level, 0.021 is not an outlier.
For 1% significance level, 0.021 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.5 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.840

For 10% significance level, 5.5 is an outlier.
For 5% significance level, 5.5 is an outlier.
For 1% significance level, 5.5 is an outlier.

2. Data Value 0.008 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 0.008 is not an outlier.
For 5% significance level, 0.008 is not an outlier.
For 1% significance level, 0.008 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_fish_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18

Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 6.6 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.580

For 10% significance level, 6.6 is an outlier.
For 5% significance level, 6.6 is an outlier.
For 1% significance level, 6.6 is an outlier.

2. Data Value 0.027 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.006

For 10% significance level, 0.027 is not an outlier.
For 5% significance level, 0.027 is not an outlier.
For 1% significance level, 0.027 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 16
Number Detects = 2
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.35 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.883

For 10% significance level, 1.35 is an outlier.
For 5% significance level, 1.35 is an outlier.
For 1% significance level, 1.35 is an outlier.

2. Data Value 0.0195 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.061

For 10% significance level, 0.0195 is not an outlier.
For 5% significance level, 0.0195 is not an outlier.
For 1% significance level, 0.0195 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 16
Number Detects = 2
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.35 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.883

For 10% significance level, 1.35 is an outlier.
For 5% significance level, 1.35 is an outlier.
For 1% significance level, 1.35 is an outlier.

2. Data Value 0.0195 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.061

For 10% significance level, 0.0195 is not an outlier.
For 5% significance level, 0.0195 is not an outlier.
For 1% significance level, 0.0195 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 16
Number Detects = 2
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.35 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.883

For 10% significance level, 1.35 is an outlier.
For 5% significance level, 1.35 is an outlier.
For 1% significance level, 1.35 is an outlier.

2. Data Value 0.0195 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.061

For 10% significance level, 0.0195 is not an outlier.
For 5% significance level, 0.0195 is not an outlier.
For 1% significance level, 0.0195 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.96 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.783

For 10% significance level, 0.96 is an outlier.
For 5% significance level, 0.96 is an outlier.
For 1% significance level, 0.96 is an outlier.

2. Data Value 0.022 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.029

For 10% significance level, 0.022 is not an outlier.
For 5% significance level, 0.022 is not an outlier.
For 1% significance level, 0.022 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.021 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.758

For 10% significance level, 0.021 is an outlier.
For 5% significance level, 0.021 is an outlier.
For 1% significance level, 0.021 is an outlier.

2. Data Value 0.00062 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.062

For 10% significance level, 0.00062 is not an outlier.

For 5% significance level, 0.00062 is not an outlier.
For 1% significance level, 0.00062 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.96 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.783

For 10% significance level, 0.96 is an outlier.
For 5% significance level, 0.96 is an outlier.
For 1% significance level, 0.96 is an outlier.

2. Data Value 0.022 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.029

For 10% significance level, 0.022 is not an outlier.
For 5% significance level, 0.022 is not an outlier.
For 1% significance level, 0.022 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.96 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.783

For 10% significance level, 0.96 is an outlier.
For 5% significance level, 0.96 is an outlier.
For 1% significance level, 0.96 is an outlier.

2. Data Value 0.022 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.029

For 10% significance level, 0.022 is not an outlier.
For 5% significance level, 0.022 is not an outlier.
For 1% significance level, 0.022 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_fish_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.027 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.786

For 10% significance level, 0.027 is an outlier.
For 5% significance level, 0.027 is an outlier.
For 1% significance level, 0.027 is an outlier.

2. Data Value 0.00061 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.033

For 10% significance level, 0.00061 is not an outlier.
For 5% significance level, 0.00061 is not an outlier.
For 1% significance level, 0.00061 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.763

For 10% significance level, 0.1 is an outlier.
For 5% significance level, 0.1 is an outlier.
For 1% significance level, 0.1 is an outlier.

2. Data Value 0.0021 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.038

For 10% significance level, 0.0021 is not an outlier.
For 5% significance level, 0.0021 is not an outlier.
For 1% significance level, 0.0021 is not an outlier.

Dixon's Outlier Test for concDL (magnesium_ug/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7420 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.283

For 10% significance level, 7420 is not an outlier.
For 5% significance level, 7420 is not an outlier.
For 1% significance level, 7420 is not an outlier.

2. Data Value 2480 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.133

For 10% significance level, 2480 is not an outlier.
For 5% significance level, 2480 is not an outlier.
For 1% significance level, 2480 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 4
Number Detects = 14
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 716 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.154

For 10% significance level, 716 is not an outlier.
For 5% significance level, 716 is not an outlier.
For 1% significance level, 716 is not an outlier.

2. Data Value 0.395 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.395 is not an outlier.
For 5% significance level, 0.395 is not an outlier.
For 1% significance level, 0.395 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 4
Number Detects = 14
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 716 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.154

For 10% significance level, 716 is not an outlier.
For 5% significance level, 716 is not an outlier.
For 1% significance level, 716 is not an outlier.

2. Data Value 0.395 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.395 is not an outlier.
For 5% significance level, 0.395 is not an outlier.
For 1% significance level, 0.395 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 4
Number Detects = 14
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 716 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.154

For 10% significance level, 716 is not an outlier.
For 5% significance level, 716 is not an outlier.
For 1% significance level, 716 is not an outlier.

2. Data Value 0.395 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.395 is not an outlier.
For 5% significance level, 0.395 is not an outlier.
For 1% significance level, 0.395 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.47 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.341

For 10% significance level, 0.47 is not an outlier.
For 5% significance level, 0.47 is not an outlier.
For 1% significance level, 0.47 is not an outlier.

2. Data Value 0.00049 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.002

For 10% significance level, 0.00049 is not an outlier.
For 5% significance level, 0.00049 is not an outlier.
For 1% significance level, 0.00049 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561

Table C3-11
ProUCL Outlier Test for Porewater for Approach D
Upper Columbia River
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Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.045 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.156

For 10% significance level, 0.045 is not an outlier.
For 5% significance level, 0.045 is not an outlier.
For 1% significance level, 0.045 is not an outlier.

2. Data Value 4.9E-05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 4.9E-05 is not an outlier.
For 5% significance level, 4.9E-05 is not an outlier.
For 1% significance level, 4.9E-05 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.47 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.341

For 10% significance level, 0.47 is not an outlier.
For 5% significance level, 0.47 is not an outlier.
For 1% significance level, 0.47 is not an outlier.

2. Data Value 0.00049 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.002

For 10% significance level, 0.00049 is not an outlier.
For 5% significance level, 0.00049 is not an outlier.
For 1% significance level, 0.00049 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18

10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.47 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.341

For 10% significance level, 0.47 is not an outlier.
For 5% significance level, 0.47 is not an outlier.
For 1% significance level, 0.47 is not an outlier.

2. Data Value 0.00049 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.002

For 10% significance level, 0.00049 is not an outlier.
For 5% significance level, 0.00049 is not an outlier.
For 1% significance level, 0.00049 is not an outlier.

Dixon's Outlier Test for concDL (ph_su_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.221

For 10% significance level, 7.44 is not an outlier.
For 5% significance level, 7.44 is not an outlier.
For 1% significance level, 7.44 is not an outlier.

2. Data Value 6.65 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.032

For 10% significance level, 6.65 is not an outlier.
For 5% significance level, 6.65 is not an outlier.
For 1% significance level, 6.65 is not an outlier.

Dixon's Outlier Test for concDL (potassium_ug/l_concentration_na_na)

Total N = 18

Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7720 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.718

For 10% significance level, 7720 is an outlier.
For 5% significance level, 7720 is an outlier.
For 1% significance level, 7720 is an outlier.

2. Data Value 700 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.015

For 10% significance level, 700 is not an outlier.
For 5% significance level, 700 is not an outlier.
For 1% significance level, 700 is not an outlier.

Dixon's Outlier Test for concDL (sodium_ug/l_concentration_na_na)

Total N = 18
Number NDs = 2
Number Detects = 16
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5190 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.262

For 10% significance level, 5190 is not an outlier.
For 5% significance level, 5190 is not an outlier.
For 1% significance level, 5190 is not an outlier.

2. Data Value 470 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.299

For 10% significance level, 470 is not an outlier.
For 5% significance level, 470 is not an outlier.
For 1% significance level, 470 is not an outlier.

Table C3-11
ProUCL Outlier Test for Porewater for Approach D
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
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Dixon's Outlier Test for concDL (sulfate_mg/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 35.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.312

For 10% significance level, 35.4 is not an outlier.
For 5% significance level, 35.4 is not an outlier.
For 1% significance level, 35.4 is not an outlier.

2. Data Value 3.83 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.162

For 10% significance level, 3.83 is not an outlier.
For 5% significance level, 3.83 is not an outlier.
For 1% significance level, 3.83 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 13
Number Detects = 5
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 80.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.942

For 10% significance level, 80.4 is an outlier.
For 5% significance level, 80.4 is an outlier.
For 1% significance level, 80.4 is an outlier.

2. Data Value 0.55 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.032

For 10% significance level, 0.55 is not an outlier.
For 5% significance level, 0.55 is not an outlier.

For 1% significance level, 0.55 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 13
Number Detects = 5
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 80.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.942

For 10% significance level, 80.4 is an outlier.
For 5% significance level, 80.4 is an outlier.
For 1% significance level, 80.4 is an outlier.

2. Data Value 0.55 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.032

For 10% significance level, 0.55 is not an outlier.
For 5% significance level, 0.55 is not an outlier.
For 1% significance level, 0.55 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 13
Number Detects = 5
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 80.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.942

For 10% significance level, 80.4 is an outlier.
For 5% significance level, 80.4 is an outlier.
For 1% significance level, 80.4 is an outlier.

2. Data Value 0.55 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.032

For 10% significance level, 0.55 is not an outlier.
For 5% significance level, 0.55 is not an outlier.
For 1% significance level, 0.55 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.954

For 10% significance level, 1.1 is an outlier.
For 5% significance level, 1.1 is an outlier.
For 1% significance level, 1.1 is an outlier.

2. Data Value 0.0092 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.053

For 10% significance level, 0.0092 is not an outlier.
For 5% significance level, 0.0092 is not an outlier.
For 1% significance level, 0.0092 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.5 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.951

For 10% significance level, 0.5 is an outlier.
For 5% significance level, 0.5 is an outlier.
For 1% significance level, 0.5 is an outlier.

2. Data Value 0.0069 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.073

For 10% significance level, 0.0069 is not an outlier.
For 5% significance level, 0.0069 is not an outlier.
For 1% significance level, 0.0069 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.954

For 10% significance level, 1.1 is an outlier.
For 5% significance level, 1.1 is an outlier.
For 1% significance level, 1.1 is an outlier.

2. Data Value 0.0092 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.053

For 10% significance level, 0.0092 is not an outlier.
For 5% significance level, 0.0092 is not an outlier.
For 1% significance level, 0.0092 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.954

For 10% significance level, 1.1 is an outlier.

For 5% significance level, 1.1 is an outlier.
For 1% significance level, 1.1 is an outlier.

2. Data Value 0.0092 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.053

For 10% significance level, 0.0092 is not an outlier.
For 5% significance level, 0.0092 is not an outlier.
For 1% significance level, 0.0092 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.81 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.950

For 10% significance level, 0.81 is an outlier.
For 5% significance level, 0.81 is an outlier.
For 1% significance level, 0.81 is an outlier.

2. Data Value 0.0069 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.050

For 10% significance level, 0.0069 is not an outlier.
For 5% significance level, 0.0069 is not an outlier.
For 1% significance level, 0.0069 is not an outlier.

Table C3-12
ProUCL Outlier Test for Porewater for Approach F
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit

User Selected Options

Date/Time of Computation	ProUCL 5.2 9/18/2023 8:47:42 AM
From File	porewater_utl_input_ph3_fb.xls
Full Precision	OFF

Dixon's Outlier Test for concDL (alkalinity_mg/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 110 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.194

For 10% significance level, 110 is not an outlier.
For 5% significance level, 110 is not an outlier.
For 1% significance level, 110 is not an outlier.

2. Data Value 40 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.138

For 10% significance level, 40 is not an outlier.
For 5% significance level, 40 is not an outlier.
For 1% significance level, 40 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 13
Number Detects = 5
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 133 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.578

For 10% significance level, 133 is an outlier.
For 5% significance level, 133 is an outlier.
For 1% significance level, 133 is an outlier.

2. Data Value 0.4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.4 is not an outlier.
For 5% significance level, 0.4 is not an outlier.
For 1% significance level, 0.4 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 13
Number Detects = 5
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 133 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.578

For 10% significance level, 133 is an outlier.
For 5% significance level, 133 is an outlier.
For 1% significance level, 133 is an outlier.

2. Data Value 0.4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.4 is not an outlier.
For 5% significance level, 0.4 is not an outlier.
For 1% significance level, 0.4 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 13
Number Detects = 5
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 133 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.578

For 10% significance level, 133 is an outlier.
For 5% significance level, 133 is an outlier.
For 1% significance level, 133 is an outlier.

2. Data Value 0.4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.4 is not an outlier.
For 5% significance level, 0.4 is not an outlier.
For 1% significance level, 0.4 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.478

For 10% significance level, 0.4 is an outlier.

For 5% significance level, 0.4 is an outlier.

For 1% significance level, 0.4 is not an outlier.

2. Data Value 0.0015 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.004

For 10% significance level, 0.0015 is not an outlier.

For 5% significance level, 0.0015 is not an outlier.

For 1% significance level, 0.0015 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.032 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.566

For 10% significance level, 0.032 is an outlier.

For 5% significance level, 0.032 is an outlier.

For 1% significance level, 0.032 is an outlier.

2. Data Value 0.0002 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.0002 is not an outlier.

For 5% significance level, 0.0002 is not an outlier.

For 1% significance level, 0.0002 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_hq_signif_bmi_awqc)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.478

For 10% significance level, 0.4 is an outlier.
For 5% significance level, 0.4 is an outlier.
For 1% significance level, 0.4 is not an outlier.

2. Data Value 0.0015 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.004

For 10% significance level, 0.0015 is not an outlier.
For 5% significance level, 0.0015 is not an outlier.
For 1% significance level, 0.0015 is not an outlier.

Dixon's Outlier Test for concDL (aluminum_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.478

For 10% significance level, 0.4 is an outlier.
For 5% significance level, 0.4 is an outlier.
For 1% significance level, 0.4 is not an outlier.

2. Data Value 0.0015 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.004

For 10% significance level, 0.0015 is not an outlier.
For 5% significance level, 0.0015 is not an outlier.
For 1% significance level, 0.0015 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.663 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.466

For 10% significance level, 0.663 is an outlier.
For 5% significance level, 0.663 is not an outlier.
For 1% significance level, 0.663 is not an outlier.

2. Data Value 0.038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.130

For 10% significance level, 0.038 is not an outlier.
For 5% significance level, 0.038 is not an outlier.
For 1% significance level, 0.038 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.663 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.466

For 10% significance level, 0.663 is an outlier.
For 5% significance level, 0.663 is not an outlier.
For 1% significance level, 0.663 is not an outlier.

2. Data Value 0.038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.130

For 10% significance level, 0.038 is not an outlier.
For 5% significance level, 0.038 is not an outlier.
For 1% significance level, 0.038 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.663 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.466

For 10% significance level, 0.663 is an outlier.
For 5% significance level, 0.663 is not an outlier.
For 1% significance level, 0.663 is not an outlier.

2. Data Value 0.038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.130

For 10% significance level, 0.038 is not an outlier.
For 5% significance level, 0.038 is not an outlier.
For 1% significance level, 0.038 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.017 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.551

For 10% significance level, 0.017 is an outlier.
For 5% significance level, 0.017 is an outlier.
For 1% significance level, 0.017 is not an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.296

For 10% significance level, 0.0019 is not an outlier.
For 5% significance level, 0.0019 is not an outlier.
For 1% significance level, 0.0019 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.0003 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.536

For 10% significance level, 0.0003 is an outlier.
For 5% significance level, 0.0003 is an outlier.

For 1% significance level, 0.0003 is not an outlier.

2. Data Value 3.5E-05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.283

For 10% significance level, 3.5E-05 is not an outlier.
For 5% significance level, 3.5E-05 is not an outlier.
For 1% significance level, 3.5E-05 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.017 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.551

For 10% significance level, 0.017 is an outlier.
For 5% significance level, 0.017 is an outlier.
For 1% significance level, 0.017 is not an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.296

For 10% significance level, 0.0019 is not an outlier.
For 5% significance level, 0.0019 is not an outlier.
For 1% significance level, 0.0019 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_bmi_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.008 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.550

For 10% significance level, 0.008 is an outlier.

For 5% significance level, 0.008 is an outlier.

For 1% significance level, 0.008 is not an outlier.

2. Data Value 0.00092 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.286

For 10% significance level, 0.00092 is not an outlier.

For 5% significance level, 0.00092 is not an outlier.

For 1% significance level, 0.00092 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_fish_awqc)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.017 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.551

For 10% significance level, 0.017 is an outlier.

For 5% significance level, 0.017 is an outlier.

For 1% significance level, 0.017 is not an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.296

For 10% significance level, 0.0019 is not an outlier.

For 5% significance level, 0.0019 is not an outlier.

For 1% significance level, 0.0019 is not an outlier.

Dixon's Outlier Test for concDL (antimony_ug/l_hq_signif_fish_taxa-specific benchmark)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.00024 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.556

For 10% significance level, 0.00024 is an outlier.

For 5% significance level, 0.00024 is an outlier.

For 1% significance level, 0.00024 is not an outlier.

2. Data Value 2.7E-05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.292

For 10% significance level, 2.7E-05 is not an outlier.

For 5% significance level, 2.7E-05 is not an outlier.

For 1% significance level, 2.7E-05 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_concentration_aquatic plants_awqc)

Total N = 18

Number NDs = 3

Number Detects = 15

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.244 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.867

For 10% significance level, 0.244 is an outlier.
For 5% significance level, 0.244 is an outlier.
For 1% significance level, 0.244 is an outlier.

2. Data Value 0.004 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.004 is not an outlier.
For 5% significance level, 0.004 is not an outlier.
For 1% significance level, 0.004 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 3
Number Detects = 15
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.244 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.867

For 10% significance level, 0.244 is an outlier.
For 5% significance level, 0.244 is an outlier.
For 1% significance level, 0.244 is an outlier.

2. Data Value 0.004 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.004 is not an outlier.
For 5% significance level, 0.004 is not an outlier.
For 1% significance level, 0.004 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 3
Number Detects = 15
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.244 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.867

For 10% significance level, 0.244 is an outlier.
For 5% significance level, 0.244 is an outlier.
For 1% significance level, 0.244 is an outlier.

2. Data Value 0.004 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.004 is not an outlier.
For 5% significance level, 0.004 is not an outlier.
For 1% significance level, 0.004 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.843

For 10% significance level, 0.44 is an outlier.
For 5% significance level, 0.44 is an outlier.
For 1% significance level, 0.44 is an outlier.

2. Data Value 0.009 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.056

For 10% significance level, 0.009 is not an outlier.
For 5% significance level, 0.009 is not an outlier.
For 1% significance level, 0.009 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.0044 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.883

For 10% significance level, 0.0044 is an outlier.
For 5% significance level, 0.0044 is an outlier.
For 1% significance level, 0.0044 is an outlier.

2. Data Value 0.00014 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.00014 is not an outlier.
For 5% significance level, 0.00014 is not an outlier.
For 1% significance level, 0.00014 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.843

For 10% significance level, 0.44 is an outlier.

For 5% significance level, 0.44 is an outlier.

For 1% significance level, 0.44 is an outlier.

2. Data Value 0.009 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.056

For 10% significance level, 0.009 is not an outlier.

For 5% significance level, 0.009 is not an outlier.

For 1% significance level, 0.009 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_hq_signif_fish_awqc)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.843

For 10% significance level, 0.44 is an outlier.

For 5% significance level, 0.44 is an outlier.

For 1% significance level, 0.44 is an outlier.

2. Data Value 0.009 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.056

For 10% significance level, 0.009 is not an outlier.

For 5% significance level, 0.009 is not an outlier.

For 1% significance level, 0.009 is not an outlier.

Dixon's Outlier Test for concDL (cadmium_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.06 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.842

For 10% significance level, 0.06 is an outlier.

For 5% significance level, 0.06 is an outlier.

For 1% significance level, 0.06 is an outlier.

2. Data Value 0.0012 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.061

For 10% significance level, 0.0012 is not an outlier.

For 5% significance level, 0.0012 is not an outlier.

For 1% significance level, 0.0012 is not an outlier.

Dixon's Outlier Test for concDL (calcium_ug/l_concentration_na_na)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 40700 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.349

For 10% significance level, 40700 is not an outlier.
For 5% significance level, 40700 is not an outlier.
For 1% significance level, 40700 is not an outlier.

2. Data Value 13700 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.171

For 10% significance level, 13700 is not an outlier.
For 5% significance level, 13700 is not an outlier.
For 1% significance level, 13700 is not an outlier.

Dixon's Outlier Test for concDL (chloride_mg/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.287

For 10% significance level, 5.4 is not an outlier.
For 5% significance level, 5.4 is not an outlier.
For 1% significance level, 5.4 is not an outlier.

2. Data Value 0.16 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.021

For 10% significance level, 0.16 is not an outlier.
For 5% significance level, 0.16 is not an outlier.
For 1% significance level, 0.16 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 17
Number Detects = 1
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.59 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.876

For 10% significance level, 3.59 is an outlier.
For 5% significance level, 3.59 is an outlier.
For 1% significance level, 3.59 is an outlier.

2. Data Value 0.005 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.005 is not an outlier.
For 5% significance level, 0.005 is not an outlier.
For 1% significance level, 0.005 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 17
Number Detects = 1
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.59 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.876

For 10% significance level, 3.59 is an outlier.
For 5% significance level, 3.59 is an outlier.
For 1% significance level, 3.59 is an outlier.

2. Data Value 0.005 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.005 is not an outlier.
For 5% significance level, 0.005 is not an outlier.
For 1% significance level, 0.005 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 17
Number Detects = 1
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.59 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.876

For 10% significance level, 3.59 is an outlier.
For 5% significance level, 3.59 is an outlier.
For 1% significance level, 3.59 is an outlier.

2. Data Value 0.005 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.005 is not an outlier.
For 5% significance level, 0.005 is not an outlier.
For 1% significance level, 0.005 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.868

For 10% significance level, 7 is an outlier.

For 5% significance level, 7 is an outlier.

For 1% significance level, 7 is an outlier.

2. Data Value 0.0038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.004

For 10% significance level, 0.0038 is not an outlier.

For 5% significance level, 0.0038 is not an outlier.

For 1% significance level, 0.0038 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_hq_signif_bmi_awqc)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.868

For 10% significance level, 7 is an outlier.

For 5% significance level, 7 is an outlier.

For 1% significance level, 7 is an outlier.

2. Data Value 0.0038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.004

For 10% significance level, 0.0038 is not an outlier.

For 5% significance level, 0.0038 is not an outlier.

For 1% significance level, 0.0038 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.868

For 10% significance level, 7 is an outlier.
For 5% significance level, 7 is an outlier.
For 1% significance level, 7 is an outlier.

2. Data Value 0.0038 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.004

For 10% significance level, 0.0038 is not an outlier.
For 5% significance level, 0.0038 is not an outlier.
For 1% significance level, 0.0038 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_hq_signif_fish_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.75 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.854

For 10% significance level, 0.75 is an outlier.

For 5% significance level, 0.75 is an outlier.

For 1% significance level, 0.75 is an outlier.

2. Data Value 0.00053 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.004

For 10% significance level, 0.00053 is not an outlier.

For 5% significance level, 0.00053 is not an outlier.

For 1% significance level, 0.00053 is not an outlier.

Dixon's Outlier Test for concDL (copper_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 13 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.870

For 10% significance level, 13 is an outlier.

For 5% significance level, 13 is an outlier.

For 1% significance level, 13 is an outlier.

2. Data Value 0.0067 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.004

For 10% significance level, 0.0067 is not an outlier.

For 5% significance level, 0.0067 is not an outlier.

For 1% significance level, 0.0067 is not an outlier.

Dixon's Outlier Test for concDL (doc_mg/l_concentration_na_na)

Total N = 18

Number NDs = 1
Number Detects = 17
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 3.05 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.544

For 10% significance level, 3.05 is an outlier.
For 5% significance level, 3.05 is an outlier.
For 1% significance level, 3.05 is not an outlier.

2. Data Value 0.035 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.204

For 10% significance level, 0.035 is not an outlier.
For 5% significance level, 0.035 is not an outlier.
For 1% significance level, 0.035 is not an outlier.

Dixon's Outlier Test for concDL (hardness_mg/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 133 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.356

For 10% significance level, 133 is not an outlier.
For 5% significance level, 133 is not an outlier.
For 1% significance level, 133 is not an outlier.

2. Data Value 47 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.173

For 10% significance level, 47 is not an outlier.
For 5% significance level, 47 is not an outlier.
For 1% significance level, 47 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5480 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.842

For 10% significance level, 5480 is an outlier.
For 5% significance level, 5480 is an outlier.
For 1% significance level, 5480 is an outlier.

2. Data Value 0.75 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.75 is not an outlier.
For 5% significance level, 0.75 is not an outlier.
For 1% significance level, 0.75 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5480 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.842

For 10% significance level, 5480 is an outlier.
For 5% significance level, 5480 is an outlier.
For 1% significance level, 5480 is an outlier.

2. Data Value 0.75 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.75 is not an outlier.
For 5% significance level, 0.75 is not an outlier.
For 1% significance level, 0.75 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 12
Number Detects = 6
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5480 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.842

For 10% significance level, 5480 is an outlier.
For 5% significance level, 5480 is an outlier.
For 1% significance level, 5480 is an outlier.

2. Data Value 0.75 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.75 is not an outlier.
For 5% significance level, 0.75 is not an outlier.
For 1% significance level, 0.75 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.5 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.842

For 10% significance level, 5.5 is an outlier.
For 5% significance level, 5.5 is an outlier.
For 1% significance level, 5.5 is an outlier.

2. Data Value 0.0015 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.0015 is not an outlier.
For 5% significance level, 0.0015 is not an outlier.
For 1% significance level, 0.0015 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.46 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.844

For 10% significance level, 0.46 is an outlier.

For 5% significance level, 0.46 is an outlier.

For 1% significance level, 0.46 is an outlier.

2. Data Value 0.00012 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.00012 is not an outlier.

For 5% significance level, 0.00012 is not an outlier.

For 1% significance level, 0.00012 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_bmi_awqc)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.5 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.842

For 10% significance level, 5.5 is an outlier.

For 5% significance level, 5.5 is an outlier.

For 1% significance level, 5.5 is an outlier.

2. Data Value 0.0015 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.0015 is not an outlier.

For 5% significance level, 0.0015 is not an outlier.

For 1% significance level, 0.0015 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_bmi_taxa-specific benchmark)

Total N = 18

Number NDs = 0

Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 6.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.766

For 10% significance level, 6.4 is an outlier.
For 5% significance level, 6.4 is an outlier.
For 1% significance level, 6.4 is an outlier.

2. Data Value 0.0028 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 0.0028 is not an outlier.
For 5% significance level, 0.0028 is not an outlier.
For 1% significance level, 0.0028 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 5.5 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.842

For 10% significance level, 5.5 is an outlier.
For 5% significance level, 5.5 is an outlier.
For 1% significance level, 5.5 is an outlier.

2. Data Value 0.0015 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.0015 is not an outlier.
For 5% significance level, 0.0015 is not an outlier.
For 1% significance level, 0.0015 is not an outlier.

Dixon's Outlier Test for concDL (iron_ug/l_hq_signif_fish_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 6.6 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.591

For 10% significance level, 6.6 is an outlier.
For 5% significance level, 6.6 is an outlier.
For 1% significance level, 6.6 is an outlier.

2. Data Value 0.0044 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 0.0044 is not an outlier.
For 5% significance level, 0.0044 is not an outlier.
For 1% significance level, 0.0044 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 16
Number Detects = 2
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

Table C3-12
ProUCL Outlier Test for Porewater for Approach F
Upper Columbia River
Final Aquatic Baseline Ecological Risk Assessment
Appendix C, Attachment C3

1. Data Value 1.24 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.900

For 10% significance level, 1.24 is an outlier.
For 5% significance level, 1.24 is an outlier.
For 1% significance level, 1.24 is an outlier.

2. Data Value 0.0045 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.0045 is not an outlier.
For 5% significance level, 0.0045 is not an outlier.
For 1% significance level, 0.0045 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 16
Number Detects = 2
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.24 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.900

For 10% significance level, 1.24 is an outlier.
For 5% significance level, 1.24 is an outlier.
For 1% significance level, 1.24 is an outlier.

2. Data Value 0.0045 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.0045 is not an outlier.
For 5% significance level, 0.0045 is not an outlier.
For 1% significance level, 0.0045 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 16
Number Detects = 2
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.24 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.900

For 10% significance level, 1.24 is an outlier.
For 5% significance level, 1.24 is an outlier.
For 1% significance level, 1.24 is an outlier.

2. Data Value 0.0045 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.0045 is not an outlier.
For 5% significance level, 0.0045 is not an outlier.
For 1% significance level, 0.0045 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.89 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.858

For 10% significance level, 0.89 is an outlier.

For 5% significance level, 0.89 is an outlier.

For 1% significance level, 0.89 is an outlier.

2. Data Value 0.0033 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 0.0033 is not an outlier.

For 5% significance level, 0.0033 is not an outlier.

For 1% significance level, 0.0033 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.02 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.801

For 10% significance level, 0.02 is an outlier.

For 5% significance level, 0.02 is an outlier.

For 1% significance level, 0.02 is an outlier.

2. Data Value 0.00014 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.00014 is not an outlier.

For 5% significance level, 0.00014 is not an outlier.

For 1% significance level, 0.00014 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_bmi_awqc)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.89 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.858

For 10% significance level, 0.89 is an outlier.
For 5% significance level, 0.89 is an outlier.
For 1% significance level, 0.89 is an outlier.

2. Data Value 0.0033 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 0.0033 is not an outlier.
For 5% significance level, 0.0033 is not an outlier.
For 1% significance level, 0.0033 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.89 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.858

For 10% significance level, 0.89 is an outlier.
For 5% significance level, 0.89 is an outlier.
For 1% significance level, 0.89 is an outlier.

2. Data Value 0.0033 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 0.0033 is not an outlier.
For 5% significance level, 0.0033 is not an outlier.
For 1% significance level, 0.0033 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_fish_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.025 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.860

For 10% significance level, 0.025 is an outlier.
For 5% significance level, 0.025 is an outlier.
For 1% significance level, 0.025 is an outlier.

2. Data Value 9.3E-05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.005

For 10% significance level, 9.3E-05 is not an outlier.
For 5% significance level, 9.3E-05 is not an outlier.
For 1% significance level, 9.3E-05 is not an outlier.

Dixon's Outlier Test for concDL (lead_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.095 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.853

For 10% significance level, 0.095 is an outlier.
For 5% significance level, 0.095 is an outlier.
For 1% significance level, 0.095 is an outlier.

2. Data Value 0 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0 is not an outlier.
For 5% significance level, 0 is not an outlier.
For 1% significance level, 0 is not an outlier.

Dixon's Outlier Test for concDL (magnesium_ug/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7350 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.283

For 10% significance level, 7350 is not an outlier.
For 5% significance level, 7350 is not an outlier.
For 1% significance level, 7350 is not an outlier.

2. Data Value 2410 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.133

For 10% significance level, 2410 is not an outlier.
For 5% significance level, 2410 is not an outlier.
For 1% significance level, 2410 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 4
Number Detects = 14
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 716 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.154

For 10% significance level, 716 is not an outlier.
For 5% significance level, 716 is not an outlier.
For 1% significance level, 716 is not an outlier.

2. Data Value 0.175 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.175 is not an outlier.
For 5% significance level, 0.175 is not an outlier.
For 1% significance level, 0.175 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_concentration_bmi_awqc)

Total N = 18
Number NDs = 4
Number Detects = 14
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 716 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.154

For 10% significance level, 716 is not an outlier.
For 5% significance level, 716 is not an outlier.

For 1% significance level, 716 is not an outlier.

2. Data Value 0.175 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.175 is not an outlier.
For 5% significance level, 0.175 is not an outlier.
For 1% significance level, 0.175 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_concentration_fish_awqc)

Total N = 18
Number NDs = 4
Number Detects = 14
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 716 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.154

For 10% significance level, 716 is not an outlier.
For 5% significance level, 716 is not an outlier.
For 1% significance level, 716 is not an outlier.

2. Data Value 0.175 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.175 is not an outlier.
For 5% significance level, 0.175 is not an outlier.
For 1% significance level, 0.175 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18

10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.47 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.341

For 10% significance level, 0.47 is not an outlier.
For 5% significance level, 0.47 is not an outlier.
For 1% significance level, 0.47 is not an outlier.

2. Data Value 0.00022 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.002

For 10% significance level, 0.00022 is not an outlier.
For 5% significance level, 0.00022 is not an outlier.
For 1% significance level, 0.00022 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.045 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.156

For 10% significance level, 0.045 is not an outlier.
For 5% significance level, 0.045 is not an outlier.
For 1% significance level, 0.045 is not an outlier.

2. Data Value 2.2E-05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 2.2E-05 is not an outlier.
For 5% significance level, 2.2E-05 is not an outlier.
For 1% significance level, 2.2E-05 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.47 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.341

For 10% significance level, 0.47 is not an outlier.
For 5% significance level, 0.47 is not an outlier.
For 1% significance level, 0.47 is not an outlier.

2. Data Value 0.00022 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.002

For 10% significance level, 0.00022 is not an outlier.
For 5% significance level, 0.00022 is not an outlier.
For 1% significance level, 0.00022 is not an outlier.

Dixon's Outlier Test for concDL (manganese_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.47 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.341

For 10% significance level, 0.47 is not an outlier.
For 5% significance level, 0.47 is not an outlier.
For 1% significance level, 0.47 is not an outlier.

2. Data Value 0.00022 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.002

For 10% significance level, 0.00022 is not an outlier.
For 5% significance level, 0.00022 is not an outlier.
For 1% significance level, 0.00022 is not an outlier.

Dixon's Outlier Test for concDL (ph_su_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7.44 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.221

For 10% significance level, 7.44 is not an outlier.
For 5% significance level, 7.44 is not an outlier.
For 1% significance level, 7.44 is not an outlier.

2. Data Value 6.65 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.032

For 10% significance level, 6.65 is not an outlier.
For 5% significance level, 6.65 is not an outlier.
For 1% significance level, 6.65 is not an outlier.

Dixon's Outlier Test for concDL (potassium_ug/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 7720 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.718

For 10% significance level, 7720 is an outlier.
For 5% significance level, 7720 is an outlier.
For 1% significance level, 7720 is an outlier.

2. Data Value 700 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.015

For 10% significance level, 700 is not an outlier.
For 5% significance level, 700 is not an outlier.
For 1% significance level, 700 is not an outlier.

Dixon's Outlier Test for concDL (sodium_ug/l_concentration_na_na)

Total N = 18
Number NDs = 2
Number Detects = 16
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 4940 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.262

For 10% significance level, 4940 is not an outlier.
For 5% significance level, 4940 is not an outlier.
For 1% significance level, 4940 is not an outlier.

2. Data Value 345 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.275

For 10% significance level, 345 is not an outlier.
For 5% significance level, 345 is not an outlier.
For 1% significance level, 345 is not an outlier.

Dixon's Outlier Test for concDL (sulfate_mg/l_concentration_na_na)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 35.4 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.312

For 10% significance level, 35.4 is not an outlier.
For 5% significance level, 35.4 is not an outlier.
For 1% significance level, 35.4 is not an outlier.

2. Data Value 3.83 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.162

For 10% significance level, 3.83 is not an outlier.
For 5% significance level, 3.83 is not an outlier.
For 1% significance level, 3.83 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_concentration_aquatic plants_awqc)

Total N = 18
Number NDs = 13
Number Detects = 5
Number Data (n) = 18
10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 79.6 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.947

For 10% significance level, 79.6 is an outlier.

For 5% significance level, 79.6 is an outlier.

For 1% significance level, 79.6 is an outlier.

2. Data Value 0.15 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.034

For 10% significance level, 0.15 is not an outlier.

For 5% significance level, 0.15 is not an outlier.

For 1% significance level, 0.15 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_concentration_bmi_awqc)

Total N = 18

Number NDs = 13

Number Detects = 5

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 79.6 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.947

For 10% significance level, 79.6 is an outlier.

For 5% significance level, 79.6 is an outlier.

For 1% significance level, 79.6 is an outlier.

2. Data Value 0.15 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.034

For 10% significance level, 0.15 is not an outlier.

For 5% significance level, 0.15 is not an outlier.

For 1% significance level, 0.15 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_concentration_fish_awqc)

Total N = 18

Number NDs = 13

Number Detects = 5

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 79.6 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.947

For 10% significance level, 79.6 is an outlier.

For 5% significance level, 79.6 is an outlier.

For 1% significance level, 79.6 is an outlier.

2. Data Value 0.15 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.034

For 10% significance level, 0.15 is not an outlier.

For 5% significance level, 0.15 is not an outlier.

For 1% significance level, 0.15 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_hq_signif_aquatic plants_awqc)

Total N = 18

Number NDs = 0

Number Detects = 18

Number Data (n) = 18

10% critical value: 0.424

5% critical value: 0.475

1% critical value: 0.561

Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.955

For 10% significance level, 1.1 is an outlier.
For 5% significance level, 1.1 is an outlier.
For 1% significance level, 1.1 is an outlier.

2. Data Value 0.0025 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.063

For 10% significance level, 0.0025 is not an outlier.
For 5% significance level, 0.0025 is not an outlier.
For 1% significance level, 0.0025 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_hq_signif_aquatic plants_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.5 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.951

For 10% significance level, 0.5 is an outlier.
For 5% significance level, 0.5 is an outlier.
For 1% significance level, 0.5 is an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.073

For 10% significance level, 0.0019 is not an outlier.
For 5% significance level, 0.0019 is not an outlier.
For 1% significance level, 0.0019 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_hq_signif_bmi_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.955

For 10% significance level, 1.1 is an outlier.
For 5% significance level, 1.1 is an outlier.
For 1% significance level, 1.1 is an outlier.

2. Data Value 0.0025 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.063

For 10% significance level, 0.0025 is not an outlier.
For 5% significance level, 0.0025 is not an outlier.
For 1% significance level, 0.0025 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_hq_signif_fish_awqc)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 1.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.955

For 10% significance level, 1.1 is an outlier.
For 5% significance level, 1.1 is an outlier.
For 1% significance level, 1.1 is an outlier.

2. Data Value 0.0025 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.063

For 10% significance level, 0.0025 is not an outlier.
For 5% significance level, 0.0025 is not an outlier.
For 1% significance level, 0.0025 is not an outlier.

Dixon's Outlier Test for concDL (zinc_ug/l_hq_signif_white sturgeon_taxa-specific benchmark)

Total N = 18
Number NDs = 0
Number Detects = 18
Number Data (n) = 18
10% critical value: 0.424
5% critical value: 0.475
1% critical value: 0.561
Note: NDs replaced by DL/2 in Outlier Test

1. Data Value 0.8 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.952

For 10% significance level, 0.8 is an outlier.
For 5% significance level, 0.8 is an outlier.
For 1% significance level, 0.8 is an outlier.

2. Data Value 0.0019 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.068

For 10% significance level, 0.0019 is not an outlier.
For 5% significance level, 0.0019 is not an outlier.
For 1% significance level, 0.0019 is not an outlier.



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